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19 December 2008

Ms. Alicia Barraza
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Solid Waste and Corrective Action
625 Broadway
Albany, New York 12233-7258

Re: Former TRW Aeronautical Systems Facility
211 Seward Avenue, Utica, NY
Soil Vapor Extraction Pilot Test Summary Report

Dear Ms. Barraza:

On behalf of Lucas Western LLC, attached are two copies of the Soil Vapor Extraction (SVE) Pilot Test Summary Report (the "Report") for your review. The Report summarizes the SVE pilot test activities performed at the above-referenced site between September 2007 and September 2008.

Should you have any questions or wish to further discuss the results of the SVE pilot test, please contact Kurt Batsel at 770-578-9696.

Sincerely,

Joseph P. Kwan
Corporate Director, Environmental Remediation
on behalf of Northrop Grumman Space & Mission Systems Corp.

Attachment - Soil Vapor Extraction Pilot Test Summary Report

cc: Larry Rosenmann, NYSDEC
Greg Rys, NYSDOH
Kurt Batsel, The Dextra Group

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Lucas Western LLC

Soil Vapor Extraction Pilot Test Summary Report

Former TRW Aeronautical Systems Facility
211 Seward Avenue – Utica, New York

December 2008

ARCADIS

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Soil Vapor Extraction Pilot Test Summary Report

Former TRW Aeronautical Systems Facility
211 Seward Avenue
Utica, New York

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Our Ref.:
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Date:
December 2008

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1. Introduction

1.1 General

This Soil Vapor Extraction Pilot Test Report summarizes the soil vapor extraction (SVE) pilot test activities performed at the former TRW Aeronautical Systems facility located at 211 Seward Avenue, Utica, New York (the "Site"). The SVE pilot test was conducted to evaluate the effectiveness of using an SVE system to reduce subsurface vapor concentrations. The SVE pilot test activities were conducted by ARCADIS between September 2007 and September 2008.

The SVE pilot test activities were conducted in general conformance with:

- The *Soil Vapor Extraction Pilot Test Work Plan* (ARCADIS BBLES, September 2007), which was approved by the New York State Department of Environmental Conservation (NYSDEC) on October 2, 2007.

- A September 21, 2007 letter from the NYSDEC Division of Air Resources that confirms that the SVE pilot testing qualifies for the air permitting exemption for "trivial activities" as provided in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 201-3.3(c)(30), and therefore does not require an emissions permit or registration certificate.

- E-mail correspondence to the NYSDEC dated September 25, 2007 that presents the schedule for implementing the SVE pilot test.

- A September 28, 2007 letter to the NYSDEC proposing to delay additional offsite soil gas sampling until results of the SVE pilot test are available. NYSDEC approval was provided on October 2, 2007.

- A February 4, 2008 letter to the NYSDEC that requests an extension of the SVE pilot test and proposes an expanded monitoring program for soil gas probes in the vicinity of the Site. NYSDEC approval was provided on February 29, 2008.

- A February 22, 2008 letter to the NYSDEC that presents a work plan for additional soil gas monitoring in connection with the SVE pilot test extension. NYSDEC conditional approval was provided on February 29, 2008.

- A July 31, 2008 letter to the NYSDEC that presents a request to further extend the SVE pilot test period to allow operation through the end of September 2008 and proposes an additional round of soil gas monitoring.

In general, work activities completed as part of the SVE pilot test activities included:

- Installing three vapor extraction wells (VEW-1 through VEW-3) along the western border of the Site.
- Installing three pilot test monitoring wells east of each vapor extraction well.
- Installing soil gas probes at two soil gas sampling locations that were originally installed as temporary points (sampling locations SG-6 and SG-8).
- Collecting pre-SVE system pilot test baseline data from soil gas probes SG-6, SG-8, SG-19, SG-20 and SG-22 and vapor extraction wells VEW-1, VEW-2 and VEW-3.
- Performing SVE step tests to evaluate the radius of influence of each vapor extraction well under SVE operating conditions.
- Conducting an extended SVE pilot test for a period of one year.
- Conducting soil gas monitoring at select soil gas probe locations and vapor extraction wells to monitor the potential effectiveness of the SVE system at reducing subsurface vapor concentrations.

The organization of the SVE Pilot Test Summary Report is presented below, followed by a summary of relevant background information.

1.2 Report Organization

The SVE Pilot Test Summary Report has been organized into the following sections:

Section	Purpose
Section 1 – Introduction	Presents a brief overview of the SVE pilot test program and site environmental setting.

Section		Purpose
Section 2 –	SVE Pilot Test Activities Summary	Presents a detailed description of the SVE pilot test activities.
Section 3 –	Chronology of Significant Milestone Dates	Presents a chronology of significant milestone dates for the SVE pilot test activities.
Section 4 –	Modifications to SVE Pilot Test Work Plan	Summarizes modifications made to the SVE Pilot Test Work Plan.
Section 5 –	Summary and Conclusions	Provides a brief summary and conclusions based on the pilot test results.

1.3 Background Information

The Site consists of an approximately 22-acre parcel located at 211 Seward Avenue in the City of Utica, New York. A site map is provided as Figure 1. Subsurface physical conditions at the Site are discussed below, followed by an identification of previous site investigation activities.

1.3.1 Site Environmental Setting

The Site is situated on relatively flat-lying land at an elevation of approximately 510 feet above mean sea level. Site investigations have identified two principal unconsolidated geologic units below the Site: glacial outwash deposits, approximately 25 to 35 feet thick, overlying glacial till. Based on subsurface characteristics observed during previous investigations at the Site, the shallow overburden material across much of the area appears to be a heterogeneous brown fine to coarse gravel and fine to coarse sand. There appears to be a slight shift from the gravel/sand encountered across most of the Site to a few silt/silty layers towards the east.

1.3.2 Groundwater

The historical depth to groundwater at the Site is from approximately 11 feet below ground surface (bgs) to 17 feet bgs. During the most groundwater monitoring event in September 2008, the depth to groundwater ranged from 11.4 feet bgs to 16.7 feet bgs. The groundwater flow direction was generally to the north.

1.3.3 Previous Investigations

While a number of environmental investigations/evaluations have been conducted at the Site in recent years, the current activities have focused on an ongoing soil gas evaluation. Soil gas investigations have been performed in phases, as follows:

- *Phase I Soil Gas Investigation (January 2005 and February 2005):* This involved an initial round of soil gas sampling from temporary points to evaluate the potential presence and extent of volatile organic compounds (VOCs) in soil gas at the Site.

- *Phase II Soil Gas Investigation (August 2005 through October 2006):* This involved a review of available information on current and past VOC use at commercial and industrial properties in the vicinity of the Site, followed by soil gas sampling at certain onsite and offsite locations to evaluate potential soil gas migration from the Site. Soil gas sampling was performed at temporary points installed at the following locations: (1) selected offsite commercial properties (those properties where relevant chlorinated solvent use was identified and where property access was granted); and (2) along the highway right-of-way (ROW) along the west side of French Road (between the Site and residential properties west of the Site). Sub-slab vapor samples were also collected at two commercial properties.

- *Phase III Soil Gas Investigation (February 2007 through May 2007):* This involved installation and sampling of permanent soil gas probes to further evaluate the potential extent of soil gas migration in the eastern portion of the Site and to the west/southwest of the Site. Soil gas sampling was performed as follows: (1) in the eastern portion of the Site; (2) in the French Road and Gilmore Place ROWs west/ southwest of the Site; and (3) along the edge of the City baseball fields west of the residences on French Road.

- *Phase IV Soil Gas Investigation (July 2007 and August 2007):* This involved installation and sampling of additional permanent soil gas probes to further evaluate the potential extent of soil gas migration. Soil gas sampling was performed as follows: (1) along the eastern boundary of the Site; and (2) in the roadway ROWs further southwest of the Site.

Based on the results of Phase I through IV soil gas investigations, elevated levels of select VOCs, primarily 1,1,1-trichloroethane (TCA) and trichloroethene (TCE), were

identified in soil gas at and in the vicinity of the Site. These observations prompted performance of the SVE pilot program summarized herein.

2. SVE Pilot Test Activities Summary

2.1 General

Soil vapor extraction pilot testing was conducted at the Site to evaluate the effectiveness of using an SVE system to reduce subsurface vapor concentrations at and near the Site. The SVE pilot test included separate SVE "step tests" at each vapor extraction well, followed by an "extended pilot test" during which the vapor extraction wells were connected to an SVE system blower and the system was operated for a period of approximately one year.

Activities associated with implementation of the SVE pilot test included the following:

Subsection Number	Work Task
2.2	Vapor Extraction Well and Pilot Test Monitoring Well Installation
2.3	Soil Gas Probe Installation
2.4	Pre-Test Baseline Monitoring
2.5	SVE Step Tests
2.6	Extended SVE Pilot Test
2.7	Soil Gas Monitoring
2.8	SVE Pilot Test System Decommissioning

An analytical sample summary, which identifies sampling locations and sample dates for each soil gas monitoring event during the SVE pilot test, is included in Table 1. A detailed discussion of each work task associated with the SVE pilot test activities is presented below.

2.2 Vapor Extraction Well and Pilot Test Monitoring Well Installation

Three vapor extraction wells were installed along the western border of the Site (locations VEW-1 through VEW-3, as shown on Figure 2). Each vapor extraction well was installed to a depth of 10-feet bgs, and was constructed of 4-inch diameter schedule 40 polyvinyl chloride (PVC) pipe with 5 feet of 0.020 inch slot screen and 5 feet of solid PVC riser. Well construction details for the vapor extraction wells are illustrated on Figure 3.

Three pilot test monitoring wells were installed to the east of each vapor extraction well, at distances of 10, 15, and 20 feet from the vapor extraction well (locations PTMW-1 through PTMW-9, as shown on Figure 2). Each pilot test monitoring well was installed to a depth of 10-feet bgs, and was constructed of 1-inch diameter schedule 40 PVC pipe with 6 feet of 0.020 inch slot screen and 4 feet of solid PVC riser. Well construction details for the pilot test monitoring wells are illustrated on Figure 4.

The soil cuttings were containerized in 55-gallon drums and analyzed for VOCs of interest (i.e., TCA, TCE, perchloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloroethane and vinyl chloride). The VOC laboratory analytical results were below the soil guidance values presented in the NYSDEC Technical Administrative Guidance Memorandum titled "Determination of Soil Cleanup Objectives and Cleanup Levels," HWR-94-4046, dated January 24, 1994 (TAGM 4046). Based on the favorable analytical results and in accordance with Section 2.2 of the SVE Pilot Test Work Plan, the cuttings were removed from the 55-gallons drums and spread onsite.

2.3 Soil Gas Probe Installation

After receiving approval (permits) from the City of Utica for work within the French Road highway right-of-way (ROW), soil gas probes were installed at two soil gas sampling locations that were originally installed as temporary points (sampling locations SG-6 and SG-8, as shown on Figure 2). The soil gas probes were installed using the same methods that were used for the previously-installed permanent soil gas probes, which are presented in detail in the *Phase III Soil Gas Investigation Work Plan* prepared by Geosyntec, dated December 21, 2006 (hereinafter "the *Phase III Soil Gas Plan*"). The probes were installed to supplement the existing network of permanent soil gas probes for monitoring during the SVE pilot test.

Based on work previously performed within the ROW, and because the sampling locations were not within known areas of former industrial use, soil cuttings generated during the drilling activities were not expected to contain detectable concentrations of chemicals of concern. Accordingly, the soil cuttings were combined with the vapor extraction well and pilot test monitoring well soil cuttings, characterized, and then managed as discussed above in Section 2.2.

2.4 Pre-Test Baseline Monitoring

Prior to initiating the SVE system pilot test, ARCADIS collected pre-test baseline soil gas samples from soil gas probes SG-6, SG-8, SG-19, SG-20, and SG-22 on September 25, 2007. The samples were submitted to TestAmerica Laboratories in Burlington, Vermont for laboratory analysis in accordance with United States Environmental Protection Agency (USEPA) Compendium Method TO-15, using the same procedures and constituent list as used for the Phase III and IV soil vapor sampling activities (presented in detail in the *Phase III Soil Gas Plan*). The pre-test baseline soil gas analytical results were provided to the NYSDEC in e-mail correspondence dated October 29, 2007. The results are also summarized in Table 2.

2.5 SVE Step Tests

On October 2, 2007, SVE step tests were performed to evaluate the radius of influence of each vapor extraction well while under SVE operating conditions. A trailer-mounted SVE blower (equipped with an air/water separator), capable of generating vacuums ranging from 10 to 40 inches of water column at the vapor extraction well, was used to perform the step tests. The performance curve for the SVE step-test blower is included in Appendix A.

Step testing began at vapor extraction well VEW-1 with an initial target vacuum of 10 inches of water column. Applied vacuum and airflow rates were controlled with ball valves on the blower dilution line and/or vapor extraction well lines. The actual vacuum, differential pressure, and air stream temperature at vapor extraction well VEW-1 were measured and recorded approximately once every half hour. Corresponding airflow rates were determined from the differential pressure data. The pressure was also monitored at PTMW-1 through PTMW-3 and recorded approximately once every half-hour. A minimum of two rounds of data were collected to verify that steady-state conditions were achieved.

Once steady-state conditions were confirmed, the applied vacuum was increased to 20 inches of water column, and the same parameters at vapor extraction well VEW-1 and the pilot test monitoring wells were measured and recorded with the increased vacuum. Once steady-state conditions were achieved, the applied vacuum was increased from 20 to 40 inches of water column. The step test for vapor extraction well VEW-1 was concluded once steady-state conditions were achieved at the final applied target vacuum of 40 inches of water column. During the VEW-1 step test, the SVE blower was operated at applied well vacuums of 10, 20 and 40 inches of water

vacuum, and it achieved vacuum pressures at the well head of 10, 20 and 40 inches of water column, respectively. The steady-state air flow recovery rates for VEW-1 at 10, 20, and 40 inches of water column were 13, 22, and 35 standard cubic feet per minute (cfm), respectively.

SVE system emissions were directed through two Carbtrol Model G-3S vapor-phase granular activated carbon canisters, in series, for treatment and then discharged through a stack. As explained in Section 1.1 above, the SVE system pilot test was considered a "trivial activity" under the NYSDEC air regulations and did not require an emissions permit or registration certificate.

A grab sample of the pre-treatment SVE system emissions was collected at the conclusion of the SVE step testing at VEW-1 to provide baseline VOC concentrations in recovered soil gas. One sample from VEW-1 was collected on October 2, 2007 and submitted for laboratory analysis for the site-specific VOCs of interest in accordance with USEPA Compendium Method TO-15. The analytical results of the pre-treatment SVE system emissions sample from VEW-1 are presented in Table 3.

Step tests were then performed at VEW-2 and VEW-3, following the procedures explained above, with VEW-2 monitoring being performed at wells PTMW-4 through PTMW-6, and VEW-3 monitoring being performed at PTMW-7 through PMW-9. Vacuum pressures achieved during step testing at VEW-2 and VEW-3 are summarized below.

- During the VEW-2 step test, the SVE blower was operated at applied well vacuums of 16, 38, and 50 inches of water vacuum and the vacuum pressure achieved at the well head was 10, 20, and 23 inches of water column, respectively. The steady-state air flow recovery rates for VEW-2 at 10, 20, and 23 inches of water column were 32, 52, and 55 standard cfm, respectively.

- During the VEW-3 step test, the SVE blower was operated at applied well vacuums of 15, 30, and 63 inches of water vacuum and the vacuum pressure achieved at the well head was 10, 20, and 40 inches of water column, respectively. The steady-state air flow recovery rates for VEW-3 at 10, 20, and 40 inches of water column were 20, 34, and 54 standard cfm, respectively.

Consistent with the sampling approach following step-testing at VEW-1, samples of the pre-treatment SVE system emissions were also collected from VEW-2 and VEW-3

following step testing at these wells. The analytical results of the pre-treatment SVE system emissions samples from VEW-2 and VEW-3 are presented in Table 3.

The radius of influence at VEW-1 and VEW-2 (based on achieving a subsurface water column vacuum of 0.1 inches water column) was greater than 20 feet with the minimum applied vacuum during step testing (10 and 16 inches water column, respectively). The radius of influence at VEW-3 was approximately 20 feet with the maximum applied vacuum during step testing (63 inches water column). SVE step test performance monitoring data for the vapor extraction wells and pilot test monitoring wells is presented in Tables 4 and 5, respectively.

No groundwater was recovered in the air/water separator as a result of the step tests.

2.6 Extended SVE Pilot Test

Following completion of the SVE step test as described above, an extended SVE pilot test was conducted over a period of one year. The three vapor extraction wells were connected to the SVE blower using above-ground 4-inch diameter schedule 40 PVC piping. An approximate 125-foot piping section near the entrance gate to the Site was buried to accommodate vehicle access onto the Site by field staff. The system layout is provided on Figure 2.

The blower used for the extended SVE pilot test was a Gardner Denver 3LV-THC. The performance curve for the extended SVE pilot test blower is included in Appendix A. The blower was equipped with a 5 horsepower motor shived to operate at 2800 revolutions per minute.

Once per week during the one year pilot test period, the performance of the SVE system was monitored by measuring the vapor temperature, vacuum pressure, and approximate flow velocity at each of the VEWs. Using the velocity and vacuum pressure, an approximate flow rate was calculated for each VEW. In addition, each week, a subsurface vacuum pressure was measured at each of the monitoring points utilized during the step test (i.e., PTMW-1 through PTMW-9). Throughout the extended pilot test, field staff checked the pilot test monitoring wells to maintain each vapor extraction well's radius of influence (based on 0.1 inches of water column subsurface vacuum) of at least 20 feet. If 0.1 inches of water column subsurface vacuum was not observed during a monitoring event, the SVE system was field adjusted to maximize each vapor extractions well's radius of influence. During four SVE monitoring visits, the radius of influence of VEW-3 was observed to be between 15 and 20 feet.

Due to issues with condensation freezing within the conveyance piping connected to wells VEW-2 and VEW-3, extraction at these wells was discontinued from December 2007 through March 2008. However, during this period, extraction continued at VEW-1. Extraction of soil gas from wells VEW-2 and VEW-3 resumed in April 2008. The measurements obtained during each monitoring event and calculated flow rates are presented in Table 6.

2.7 Soil Gas Monitoring

As previously mentioned, baseline soil gas monitoring was performed in September 2007 prior to the start of the SVE pilot test. Sampling was subsequently performed at specific intervals during the SVE pilot test operation to monitor the potential effectiveness of the SVE system at reducing subsurface vapor concentrations and to evaluate the potential extent to which changes in soil gas concentrations might also be related to seasonal variability. Sampling was performed over a total of nine monitoring events between September 2007 and September 2008. The monitoring events involved the collection of: (1) “static” samples from selected soil gas probes (i.e., samples of the soil gas in the subsurface); and (2) “dynamic” samples from one or more vapor extraction wells (i.e., samples of the vapors being conveyed from the vapor extraction wells to the blower). One blind duplicate soil gas sample was collected during each monitoring event. An analytical sample summary, which identifies the soil gas probes and vapor extraction wells that were sampled during each monitoring event (and the date of each monitoring event), is included in Table 1.

As indicated in Table 1, static gas samples were collected from a total of 11 soil gas probes (probes SG-6, SG-8, SG-19, SG-27, SG-31B, SG-32B, SG-33B, SG-38, SG-39, SG-40, and SG-41) and dynamic soil gas samples were collected from each of the three vapor extraction wells (VEW-1, VEW-2, and VEW-3). Soil gas was not sampled at wells VEW-2 and VEW-3 from December 2007 through March 2008 (i.e., during the period that extraction was discontinued due to condensation freezing within the conveyance piping). Monitoring of soil gas from wells VEW-2 and VEW-3 resumed in April 2008.

The soil gas samples were submitted to TestAmerica of Burlington, Vermont for laboratory analysis in accordance with USEPA Compendium Method TO-15, using the same procedures and constituent list that were used for the Phase III and IV soil gas sampling activities (as presented in the *Phase III Soil Gas Investigation Work Plan*).

The laboratory analytical results for the static soil gas samples and dynamic soil gas samples are presented in Tables 2 and 3, respectively. Soil gas analytical results for detected VOCs are shown on Figure 5. Laboratory analytical data reports are included on the attached CD.

Flow velocity in the conveyance piping and VOC concentrations at the vapor extraction wells from the September 2007 monitoring event were used to calculate VOC mass removal (refer to Table 3 for the initial mass removal estimate). Based on the concentrations detected in the samples from the vapor extraction wells, the VOC mass removal observed throughout the SVE pilot test program was low. This is due to the generally low VOC concentrations in the area (i.e., levels in micrograms per cubic meter as opposed to parts per million).

Analytical data for samples collected from each of the vapor extraction wells indicates a steady decrease in VOC concentrations in the soil gas extracted throughout the pilot period. Analytical results for soil gas samples collected from the soil gas probes opposite the vapor extraction wells (including SG-6, SG-8 and SG-19) and from other locations at or near the Site (SG-27, SG-31B, SG-32B, SG-33B, SG-38, SG-39, SG-40 and SG-41) varied over the course of the pilot test. Generally, VOC levels at these probes decreased from the Fall of 2007 through the Winter and Spring of 2008. While an increase was observed in certain of these probes in the Summer of 2008, the levels then decreased by the conclusion of the pilot test in September 2008. The observed fluctuation in concentrations suggests that the soil gas concentrations may be subject to seasonal variability. Graphs showing trendlines for 1,1,1-TCA, TCE, and PCE in the vapor extraction wells and select soil gas probes are presented in Appendix B.

2.8 SVE Pilot Test System Decommissioning

The SVE system was shut down during the first week of October 2008, and the electrical service was disconnected during mid-November 2008. The vapor extraction wells and pilot test monitoring wells will be left in place, but the above- and below-grade conveyance piping will be removed. As part of an expanded full-scale treatment system planned for the Site, new conveyance piping will be installed.

3. Chronology of Significant Milestone Dates

A chronology of significant milestone dates for the SVE Pilot Test activities is presented in the table below.

Activity	Date
Vapor extraction wells and pilot test monitoring wells installed.	9/13/07 – 9/17/07
Permanent soil gas probes SG-6 and SG-8 installed.	9/24/07
Pre-test baseline monitoring performed on soil gas probes SG-6, SG-8, SG-19, SG-20 and SG-22.	9/25/07
SVE System Installation: – SVE conveyance piping installed. – Pilot test SVE system trailer installed.	 9/26/07 – 9/28/07 10/1/07
SVE step test conducted.	10/2/07
Extended SVE Pilot Test: – Weekly OM&M site inspections were performed throughout the period of SVE pilot test operation. – From December 5, 2007 through March --, 2008, vapors were extracted only from vapor extraction well VEW-1.	10/3/07 – 9/30/08
SVE System Performance Monitoring (refer to Table 1 for dates and details and to Table 7 for the operational history): – Baseline pre-test monitoring. – Routine performance monitoring.	9/25/07 – 9/24/08

4. Modifications to SVE Pilot Test Work Plan

Modifications made to the NYSDEC-approved *Soil Vapor Extraction Pilot Test Work Plan* (ARCADIS BBLES, September 2007) based on field conditions encountered are summarized below.

- The scope of the SVE Pilot Test was expanded from a three-month period to a one-year period (October 3, 2007 through September 30, 2008) to further evaluate the effectiveness of the system at reducing VOC soil gas concentrations and evaluate whether changes in soil gas concentrations may also be related to seasonal variability.

- The scope of the SVE Pilot Test was modified by shutting down vapor extraction wells VEW-2 and VEW-3 during cold months due to issues with condensation freezing in the conveyance piping connected to these wells.

- The scope of the SVE Pilot Test was modified by including additional soil gas monitoring events and collection of samples from additional soil gas probes to further evaluate the influence of the SVE system on soil gas concentrations. The SVE Pilot Test Work Plan only called for baseline soil gas monitoring. The additional monitoring was performed as described above in Subsection 2.7.

5. Summary and Conclusions

The one-year extended SVE pilot test started in October 2007 and was completed in September 2008. The SVE pilot test soil gas monitoring data shows a clear decrease in VOC soil gas concentrations at the vapor extraction wells. While the SVE pilot test soil gas analytical data shows variable levels at certain soil gas probes that may be partly a result of seasonal factors, review and evaluation of the vacuum data from the pilot test system supports that the radius of influence for the vapor extraction wells is acceptable at the observed values, which were generally 20 feet or more. Based on further review of the vacuum data from the pilot test operation, the pore volume exchange (the influence of the SVE system beyond 0.1 inches water column) would be expected to extend to approximately 80 feet. These data demonstrate the viability of SVE at removing soil gas and controlling subsurface vapors through a full-scale system that will include: (1) additional vapor extraction wells to provide coverage along the western property boundary and in the area southwest of the Site; and (2) appropriately sized and designed system components to continuously extract vapors from the existing and proposed additional wells.

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Tables

TABLE 1
SVE PILOT TEST SOIL GAS AND INFLUENT AIR MONITORING SUMMARY

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Soil Gas/Vapor Sampling Locations	2007				2008				
	9/25	10/2	11/1	12/13	2/29	4/4	4/24	6/19	9/24
Vapor Extraction Wells									
VEW-1		X	X	X	X		X	X	X
VEW-2		X					X	X	X
VEW-3		X					X	X	X
Soil Gas Probes									
SG-6	X		X	X	X		X	X	X
SG-8	X		X	X	X		X	X	X
DUP [SG-8]			X	X	X		X	X	X
SG-19	X		X	X	X		X	X	X
SG-20	X								
DUP [SG-20]	X								
SG-22	X								
SG-27						X			X
SG-31B						X	X	X	X
SG-32B						X	X	X	X
DUP [SG-32B]						X			X
SG-33B						X	X	X	X
SG-38						X	X	X	X
SG-39						X	X	X	X
SG-40									X
SG-41									X
Ambient Air									
AA-1	X		X						

Notes:
1. Samples were collected by ARCADIS on the dates indicated.
2. DUP = Blind duplicate [corresponding sampling location is identified in brackets].
3. Samples were analyzed by TestAmerica Laboratories, Inc. (TestAmerica) located in Burlington, Vermont.
4. Samples were submitted for laboratory analysis of the following volatile organic compounds by United States Environmental Protection Agency (USEPA) Compendium Method TO-15:
   - 1,1,1-Trichloroethane
   - 1,1-Dichloroethane
   - 1,1-Dichloroethene
   - 1,2-Dichloroethane
   - 1,2-Dichloroethene (total)
   - cis-1,2-Dichloroethene
   - Tetrachloroethene
   - trans-1,2-Dichloroethene
   - Trichloroethene
   - Vinyl chloride
5. A check-mark (**X**) indicates analysis was conducted.

TABLE 2
SOIL GAS AND AMBIENT AIR ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS (µg/m^3)

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

	Soil Gas Analytical Results							
Sample ID:	SG-6							
Date Collected:	10/13/06	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08
1,1,1-Trichloroethane	**1,400**	**550**	**420**	**98**	**9.8**	**87**	**46**	**290**
1,1-Dichloroethane	< 8.1	<6.5	<4.0	<1.2	<0.65	<4.0	<2.4	<3.2
1,1-Dichloroethene	< 7.9	<6.3	<4.0	<1.2	<0.63	<4.0	<2.4	<3.2
1,2-Dichloroethane	NA	<6.5	<4.0	<1.2	<0.65	<4.0	<2.4	<3.2
1,2-Dichloroethene (total)	<7.9	<6.3	<4.0	<1.2	<0.63	<4.0	<2.4	<3.2
cis-1,2-Dichloroethene	< 7.9	<6.3	<4.0	<1.2	<0.63	<4.0	<2.4	<3.2
Tetrachloroethene	NA	**410**	**310**	**120**	**27**	**75**	**8.8**	**280**
trans-1,2-Dichloroethene	< 7.9	<6.3	<4.0	<1.2	<0.63	<4.0	<2.4	<3.2
Trichloroethene	**1,700**	**1,000**	**810**	**270**	**41**	**180**	**81**	**540**
Vinyl chloride	< 5.1	<4.1	<2.6	<0.77	<0.41	<2.6	<1.5	<2.0

	Soil Gas Analytical Results							
Sample ID:	SG-8							
Date Collected:	10/13/06	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08
1,1,1-Trichloroethane	**6,500**	**6,000**	**3,200 [3,400]**	**1,300 [2,100]**	**759 [820]**	**1,300 [1,100]**	**2,200 [2,800]**	<0.87 [<0.87]
1,1-Dichloroethane	< 40	<26	<16 [<16]	<4.9 [<8.1]	<5.7 [<4.0]	<4.9 [<4.9]	<10 [<16]	<0.65 [<0.65]
1,1-Dichloroethene	< 39	<25	<16 [<16]	<4.8 [<7.9]	<5.6 [<4.0]	<4.8 [<4.8]	<9.9 [<16]	<0.63 [<0.63]
1,2-Dichloroethane	NA	<26	<16 [<16]	<4.9 [<8.1]	<5.7 [<4.0]	<4.9 [<4.9]	<10 [<16]	<0.65 [<0.65]
1,2-Dichloroethene (total)	<39	<25	<16 [<16]	<4.8 [<7.9]	<5.6 [<4.0]	<4.8 [<4.8]	<9.9 [<16]	<0.63 [<0.63]
cis-1,2-Dichloroethene	< 39	<25	<16 [<16]	<4.8 [<7.9]	<5.6 [<4.0]	<4.8 [<4.8]	<9.9 [<16]	<0.63 [<0.63]
Tetrachloroethene	NA	**460**	**430 [410]**	**150 [260]**	**60 [61]**	**140 [120]**	**260 [350]**	<1.1 [<1.1]
trans-1,2-Dichloroethene	< 39	<25	<16 [<16]	<4.8 [<7.9]	<5.6 [<4.0]	<4.8 [<4.8]	<9.9 [<16]	<0.63 [<0.63]
Trichloroethene	**3,300**	**2,500**	**1,500 [1,500]**	**530 [860]**	**330 [310]**	**420 [370]**	**860 [1,100]**	<0.86 [<0.86]
Vinyl chloride	< 25	<16	<10 [<10]	<3.1 [<5.1]	<3.6 [<2.6]	<3.1 [<3.1]	<6.4 [<10]	<0.41 [<0.41]

	Soil Gas Analytical Results									
Sample ID:	SG-19								SG-20	
Date Collected:	2/13/07	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08	5/2/07	9/25/07
1,1,1-Trichloroethane	**430**	**650**	**710**	**110**	**150**	**130**	**160**	<0.87	**140**	**220 [220]**
1,1-Dichloroethane	**0.81**	<13	<12	<2.4	<4.9	<4.0	<6.5	<0.65	<0.54	<1.2 [<1.2]
1,1-Dichloroethene	<0.32	<12	<12	<2.4	<4.8	<4.0	<6.3	<0.63	<0.52	<1.2 [<1.2]
1,2-Dichloroethane	<0.32	<13	<12	<2.4	<4.9	<4.0	<6.5	<0.65	<0.54	<1.2 [<1.2]
1,2-Dichloroethene (total)	<0.32	<12	<12	<2.4	<4.8	<4.0	<6.3	<0.63	<0.52	<1.2 [<1.2]
cis-1,2-Dichloroethene	<0.32	<12	<12	<2.4	<4.8	<4.0	<6.3	<0.63	<0.52	<1.2 [<1.2]
Tetrachloroethene	**140**	**220**	**350**	**44**	**95**	**66**	**56**	**3.0**	<0.90	**3.5 [3.1]**
trans-1,2-Dichloroethene	<0.32	<12	<12	<2.4	<4.8	<4.0	<6.3	<0.63	<0.52	<1.2 [<1.2]
Trichloroethene	**790**	**2,100**	**2,800**	**440**	**1,000**	**590**	**860**	**2.7**	**18**	**34 [33]**
Vinyl chloride	<0.20	<7.9	<7.7	<1.5	<3.1	<2.6	<4.1	<0.41	<0.34	<0.77 [<0.77]

	Soil Gas Analytical Results									
Sample ID:	SG-22		SG-27			SG-31B				
Date Collected:	2/13/07	9/25/07	5/2/07	4/4/08	9/24/08	8/8/07	4/4/08	4/24/08	6/19/08	9/24/08
1,1,1-Trichloroethane	**160**	**230**	**1,400**	**600**	**3,300**	**99**	**5.5**	**14**	**27**	<0.87
1,1-Dichloroethane	**0.49**	<1.6	**14**	<5.7	<13	<0.89	<1.6	<6.5	<0.81	<0.65
1,1-Dichloroethene	<0.32	<1.6	**1.9**	<5.6	<13	<0.87	<1.6	<6.3	<0.79	<0.63
1,2-Dichloroethane	<0.33	<1.6	**0.51 J**	<5.7	<13	<0.89	<1.6	<6.5	<0.81	<0.65
1,2-Dichloroethene (total)	<0.32	<1.6	<0.53	<5.6	<13	<0.87	<1.6	<6.3	<0.79	<0.63
cis-1,2-Dichloroethene	<0.32	<1.6	<0.53	<5.6	<13	<0.87	<1.6	<6.3	<0.79	<0.63
Tetrachloroethene	**110**	**140**	**240**	**88**	**350**	**120**	**6.2**	**13**	**23**	<1.1
trans-1,2-Dichloroethene	<0.32	<1.6	<0.53	<5.6	<13	<0.87	<1.6	<6.3	<0.79	<0.63
Trichloroethene	**150**	**330**	**510**	**150**	**640**	**230**	**15**	**35**	**70**	<0.86
Vinyl chloride	<0.21	<1.0	<0.34	<3.6	<8.4	<0.56	<1.0	<4.1	<0.51	<0.41

TABLE 2
SOIL GAS AND AMBIENT AIR ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS (µg/m^3)

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

	Soil Gas Analytical Results				
Sample ID:	**SG-32B**				
Date Collected:	**8/8/07**	**4/4/08**	**4/24/08**	**6/19/08**	**9/24/08**
1,1,1-Trichloroethane	**400 [430]**	**71 [82]**	**98**	**180**	**350 [350]**
1,1-Dichloroethane	**0.62 J [0.63 J]**	<1.2 [<1.6]	<2.4	<4.0	<6.5 [<8.1]
1,1-Dichloroethene	<0.83 [<0.85]	<1.2 [<1.6]	<2.4	<4.0	<6.3 [<7.9]
1,2-Dichloroethane	**4.7 [4.8]**	<1.2 [<1.6]	<2.4	<4.0	<6.5 [<8.1]
1,2-Dichloroethene (total)	<0.83 [<0.85]	<1.2 [<1.6]	<2.4	<4.0	<6.3 [<7.9]
cis-1,2-Dichloroethene	<0.83 [<0.85]	<1.2 [<1.6]	<2.4	<4.0	<6.3 [<7.9]
Tetrachloroethene	**160 [160]**	**19 [21]**	**28**	**52**	**110 [100]**
trans-1,2-Dichloroethene	<0.83 [<0.85]	<1.2 [<1.6]	<2.4	<4.0	<6.3 [<7.9]
Trichloroethene	**1,300 [1,400]**	**250 [270]**	**320**	**700**	**1,100 [1,000]**
Vinyl chloride	<0.54 [<0.55]	<0.77 [<1.0]	<1.5	<2.6	<4.1 [<5.1]

	Soil Gas Analytical Results				
Sample ID:	**SG-33B**				
Date Collected:	**8/8/07**	**4/4/08**	**4/24/08**	**6/19/08**	**9/24/08**
1,1,1-Trichloroethane	**190**	**60**	**40**	**87**	**150**
1,1-Dichloroethane	<0.82	<1.6	<0.81	<2.4	<2.4
1,1-Dichloroethene	<0.80	<1.6	<0.79	<2.4	<2.4
1,2-Dichloroethane	<0.82	<1.6	<0.81	<2.4	<2.4
1,2-Dichloroethene (total)	<0.80	<1.6	<0.79	<2.4	<2.4
cis-1,2-Dichloroethene	<0.80	<1.6	<0.79	<2.4	<2.4
Tetrachloroethene	**86**	**9.5**	**13**	**24**	**37**
trans-1,2-Dichloroethene	<0.80	<1.6	<0.79	<2.4	<2.4
Trichloroethene	**450**	**91**	**75**	**200**	**270**
Vinyl chloride	<0.52	<1.0	<0.51	<1.5	<1.5

	Soil Gas Analytical Results				
Sample ID:	**SG-38**				
Date Collected:	**8/9/07**	**4/4/08**	**4/24/08**	**6/19/08**	**09/24/08**
1,1,1-Trichloroethane	**380**	**71**	**100**	**140**	**310**
1,1-Dichloroethane	<0.88	<0.81	<4.0	<4.0	<4.0
1,1-Dichloroethene	<0.86	<0.79	<4.0	<4.0	<4.0
1,2-Dichloroethane	<0.88	<0.81	<4.0	<4.0	<4.0
1,2-Dichloroethene (total)	<0.86	<0.79	<4.0	<4.0	<4.0
cis-1,2-Dichloroethene	<0.86	<0.79	<4.0	<4.0	<4.0
Tetrachloroethene	**47**	**7.5**	**9.5**	**17**	**35**
trans-1,2-Dichloroethene	<0.86	<0.79	<4.0	<4.0	<4.0
Trichloroethene	**520**	**86**	**110**	**210**	**390**
Vinyl chloride	<0.56	<0.51	<2.6	<2.6	<2.6

	Soil Gas Analytical Results								
Sample ID:	**SG-39**					**SG-40**		**SG-41**	
Date Collected:	**8/9/07**	**4/4/08**	**4/24/08**	**6/19/08**	**09/24/08**	**8/9/07**	**9/24/08**	**8/9/07**	**9/24/08**
1,1,1-Trichloroethane	**180**	<1.1	**32**	**60**	**87**	**37**	**17**	**54**	**32**
1,1-Dichloroethane	<0.81	<0.81	<4.0	<2.4	<0.81	<0.82	<0.65	<0.83	<0.65
1,1-Dichloroethene	<0.79	<0.79	<4.0	<2.4	<0.79	<0.80	<0.63	<0.81	<0.63
1,2-Dichloroethane	<0.81	<0.81	<4.0	<2.4	<0.81	<0.82	<0.65	<0.83	<0.65
1,2-Dichloroethene (total)	<0.79	<0.79	<0.79	<2.4	<0.79	NA	<0.63	NA	<0.63
cis-1,2-Dichloroethene	<0.79	<0.79	<0.79	<2.4	<0.79	<0.80	<0.63	<0.81	<0.63
Tetrachloroethene	**29**	<1.4	**8.8**	**9.5**	**14**	**5.2**	**1.3**	**30**	**12**
trans-1,2-Dichloroethene	<0.79	<0.79	<0.80	<2.4	<0.79	<0.80	<0.63	<0.81	<0.63
Trichloroethene	**360**	<1.1	**70**	**130**	**160**	**38**	**16**	**22**	**10**
Vinyl chloride	<0.51	<0.51	<2.6	<1.5	<0.51	<0.52	<0.41	<0.52	<0.41

TABLE 2
SOIL GAS AND AMBIENT AIR ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS ($\mu g/m^3$)

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Sample ID:	Ambient Air Analytical Results							
Date Collected:	10/12/06	10/13/06	2/13/07	5/2/07	8/8/07	8/9/07	9/25/07	11/1/07
1,1,1-Trichloroethane	< 1.1	< 1.1	<0.88	**0.19**	<0.22	<0.78	<0.87	<0.87
1,1-Dichloroethane	< 0.81	< 0.81	<0.65	**0.1**	<0.16	<0.58	<0.65	<0.65
1,1-Dichloroethene	< 0.79	< 0.79	<0.64	**0.09**	<0.16	<0.57	<0.63	<0.63
1,2-Dichloroethane	NA	NA	<0.65	**0.14**	<0.16	<0.58	<0.65	<0.65
1,2-Dichloroethene (total)	< 0.79	< 0.79	<0.64	**0.16**	<0.16	<0.57	<0.63	<0.63
cis-1,2-Dichloroethene	< 0.79	< 0.79	<0.64	**0.08**	<0.16	<0.57	<0.63	<0.63
Tetrachloroethene	NA	NA	<1.1	**0.18**	<0.27	<0.97	<1.1	<1.1
trans-1,2-Dichloroethene	< 0.79	< 0.79	<0.64	**0.08**	<0.16	<0.57	<0.63	<0.63
Trichloroethene	< 1.1	< 1.1	<0.87	**0.16**	<0.21	<0.77	<0.86	<0.86
Vinyl chloride	< 0.51	< 0.51	<0.41	**0.05**	<0.10	<0.37	<0.41	<0.41

Notes:
1. Soil gas sample results are for soil vapor probes included in the soil vapor extraction pilot test (includes probes where baseline, monthly, and bi-monthly sampling was performed).
2. Ambient air sample results are for ambient air samples collected in connection with the soil gas sampling.
3. Samples collected by ARCADIS during October 2006, September 2007, November 2007, December 2007, February 2008, April 2008, June 2008, and September 2008 were analyzed by TestAmerica Laboratories, Inc. of Burlington, Vermont.
4. Samples collected by GeoSyntec Consultants, Inc. during February 2007, May 2007, and August 2007 and were analyzed by Alpha Woods Hole Laboratory of Westborough, Massachusetts.
5. Samples collected as part of the following programs:
   - Soil gas investigation activities between October 2006 and August 2007.
   - Pre-Soil Vapor Extraction (SVE) baseline sampling during September 2007.
   - SVE pilot test performance monitoring between November 2007 and September 2008.
6. Sample collection/analysis performed using United States Environmental Protection Agency (USEPA) Method TO-15.
7. Concentrations reported in micrograms per cubic meter ($\mu g/m^3$).
8. < = Compound was not detected above the reported laboratory analytical detection limit.
9. NA = Analysis was not performed for this compound.
10. Field duplicate sample results are presented in brackets.
11. Detected concentrations are shown in bold.
12. Analytical results have not been validated.

TABLE 3
INFLUENT VAPOR FLOW SAMPLING RESULTS FOR
VOLATILE ORGANIC COMPOUNDS

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Sample ID:	VEW-1							VEW-2				VEW-3			
Date Collected:	10/2/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08	10/2/07	4/24/08	6/19/08	9/24/08	10/2/07	4/24/08	6/19/08	9/24/08
Vapor Flow Concentration (µg/m3)															
1,1,1-Trichloroethane	**390**	**120**	<1.1	**55**	**32**	**16**	<0.87	**100**	<1.1	<3.3	<0.87	**170**	**3.1**	**12**	<0.87
1,1-Dichloroethane	**3.5**	<0.81	<0.81	<0.65	<2.4	<2.4	<0.65	< 0.65	<0.81	<2.4	<0.65	< 1.3	<0.81	<4.0	<0.65
1,1-Dichloroethene	< 3.2	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63	< 0.63	<0.79	<2.4	<0.63	< 1.3	<0.79	<4.0	<0.63
1,2-Dichloroethane	< 3.2	<0.81	<0.81	<0.65	<2.4	<2.4	<0.65	< 0.65	<0.81	<2.4	<0.65	< 1.3	<0.81	<4.0	<0.65
1,2-Dichloroethene (total)	**4.4**	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63	< 0.63	<0.79	<2.4	**0.67**	< 1.3	<0.79	<4.0	<0.63
cis-1,2-Dichloroethene	**4.4**	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63	< 0.63	<0.79	<2.4	**0.67**	< 1.3	<0.79	<4.0	<0.63
Tetrachloroethene	**140**	**20**	<1.4	**3.9**	<4.1	<4.1	<1.1	**1.5**	<1.4	<4.1	<1.1	**21**	**1.4**	**8.1**	<1.1
trans-1,2-Dichloroethene	< 3.2	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63	< 0.63	<0.79	<2.4	<0.63	< 1.3	<0.79	<4.0	<0.63
Trichloroethene	**540**	**59**	<1.1	**20**	**16**	**21**	<0.86	**7**	<1.1	**12**	**1.6**	**59**	**3.5**	**25**	**1.7**
Vinyl chloride	< 2.0	<0.51	<0.51	<0.41	<1.5	<1.5	<0.41	< 0.41	<0.51	<1.5	<0.41	< 0.82	<0.51	<2.6	<0.41
Vacuum Measurements & Approximate Vapor Flow															
Vacuum Measured at Well (in H20)	40	10	18	NA	4	8	7	10	4	5	12	10	4	5	11
Approximate Flow Velocity at Sampling(feet/min)	402	276	486	550	515	505	160	365	519	505	309	225	489	510	313
Approximate Flow Velocity During SVE Operation (feet/min)	NA	735	NA	751	819	755	NA	NA	736	1505	NA	NA	753	1200	NA
Approximate Flow Rate During Sampling (cfm)	35.1	24.1	42.4	48.0	44.9	44.1	14.0	31.9	45.3	44.1	27.0	19.6	42.7	44.5	27.3
Approximate Flow Rate During SVE Operation (cfm)	NA	64.1	NA	65.5	71.5	65.9	NA	NA	64.2	131.3	NA	NA	65.7	104.7	NA
VOC Mass Flow (g/day)															
1,1,1-Trichloroethane	0.56	0.31	0	0.15	0.09	0.04	0	0.13	0	0	0	0.14	0.01	0.05	0
1,1-Dichloroethane	0.0050	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,2-Dichloroethene (total)	0.0063	0	0	0	0	0	0	0	0	0	0.00074	0	0	0	0
cis-1,2-Dichloroethene	0.0063	0	0	0	0	0	0	0	0	0	0.00074	0	0	0	0
Tetrachloroethene	0.20	0.05	0	0.01	0.00	0	0	0.0019	0	0	0.00000	0.017	0.004	0.03	0
trans-1,2-Dichloroethene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0.77	0.15	0	0.05	0.05	0.06	0	0.0091	0	0.06	0.00176	0.047	0.009	0.11	0.00076
Vinyl chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Total VOC Mass Flow/Well (g/day):	**1.55**	**0.52**	**0.00**	**0.21**	**0.14**	**0.10**	**0.00**	**0.14**	**0.00**	**0.06**	**0.0032**	**0.20**	**0.02**	**0.19**	**0.00076**
Estimated VOC Mass Loading (based on sampling 10/2/07)															
Estimated Total VOC Mass Flow (g/day):								**1.89**							
Carbon Adsorption Capacity (lbs.):								**28.00**							
Carbon Adsorption Capacity (grams):								**12,701**							
Estimated Carbon Breakthrough Period (days):								**6,722**							

Notes:

1. Samples collected by ARCADIS from the 4-inch diameter Schedule 40 polyvinyl chloride (PVC) extraction piping connected to the vapor extraction wells (sampling locations are approximately 1- to 2-feet from the wells) on the dates indicated.
2. Sampling was performed at each location while the blower was running and vapors were being conveyed from the well to the blower. Sampling on October 2, 2007 was completed at the end of soil vapor extraction system (SVE) step testing for each well.
3. Samples analyzed by TestAmerica Laboratories, Inc. of Burlington, Vermont.
4. Sample collection/analysis performed using United States Environmental Protection Agency (USEPA) Compendium Method TO-15.
5. Concentrations reported in micrograms per cubic meter (µg/m3).
6. < = Compound was not detected above the reported laboratory analytical detection limit.
7. Detected concentrations are shown in bold.
8. Analytical results have not been validated.
9. in H20 = inches water column.
10. feet/min = feet per minute.
11. cfm = cubic feet per minute.
12. Carbon adsorption capacity is the amount of volatile organic compounds (VOCs) that can be adsorbed and is assumed to be equivalent to 10% of the total mass of the carbon.
13. NA = Not Available.
14. VOC mass flow is calculated using the approximate flow rate during SVE operation, when available, or the approximate flow rate during sampling.

TABLE 4
SVE STEP TEST PERFORMANCE MONITORING DATA
FOR VAPOR EXTRACTION WELLS

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

VEW ID	Time (EST)	VEW Vacuum Pressure (in H_2O)	Blower Vacuum Pressure (in H_2O)	Air Velocity (feet/min)	Flow Rate (cfm)	PPB RAE Reading (ppb)	Temperature (°F)	Condensation Observed (Yes/No)
VEW-1	8:00	10.0	10.0	146	13	0.0	66.7	No
	8:25	10.0	10.0	148	13	0.0	66.7	No
	8:30	20.0	20.0	224	20	0.0	67.1	No
	8:55	20.0	20.0	257	22	0.0	67.8	No
	9:00	40.0	40.0	452	39	0.0	67.2	No
	9:25	40.0	40.0	402	35	0.0	66.9	No
VEW-2	10:50	10.0	16.0	365	32	0.0	57.9	No
	11:25	10.0	16.0	365	32	0.0	59.3	No
	11:30	20.0	38.0	565	49	0.0	64.4	No
	11:55	20.0	38.0	598	52	0.0	59.0	No
	12:00	23.0	50.0	662	58	0.0	58.8	No
	12:25	23.0	50.0	628	55	0.0	59.0	No
VEW-3	13:00	10.0	15.0	223	19	0.0	62.2	No
	13:25	10.0	15.0	225	20	0.0	61.8	No
	13:30	20.0	30.0	364	32	0.0	61.5	No
	13:55	20.0	30.0	393	34	0.0	60.8	No
	14:00	40.0	63.0	626	55	0.0	60.6	No
	14:25	40.0	63.0	617	54	0.0	59.9	No

Notes:
1. Step testing was performed by ARCADIS of New York, Inc. (ARCADIS BBL) on October 2, 2007.
2. The blower used for the step testing was a ROOTS Frame 53 Universal RAI Rotary Positive Blower with 2-inch diameter inlet/outlet.
3. Vacuum was applied to one well at a time and was adjusted during step testing.
4. VEW = vapor extraction well.
5. EST = Eastern Standard Time.
6. IN H_2O = inches of water column.
7. feet/min = feet per minute.
8. cfm = cubic feet per minute.
9. ppb = parts per billion.
10. °F = degrees Fahrenheit.

TABLE 5
SVE STEP TEST PERFORMANCE MONITORING DATA
FOR PILOT TEST MONITORING WELLS

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

PTMW ID	Time (EST)	PTMW Vacuum Pressure (in H_20)	Blower Vacuum Pressure (in H_20)	PPB RAE Reading (ppb)
VEW-1 Step Test Results				
1	8:00	0.30	10	0.0
1	8:25	0.30	10	0.0
1	8:30	0.49	20	0.0
1	8:55	0.52	20	0.0
1	9:00	0.86	40	0.0
1	9:25	0.84	40	0.0
2	8:00	0.32	10	0.0
2	8:25	0.32	10	0.0
2	8:30	0.28	20	0.0
2	8:55	0.34	20	0.0
2	9:00	0.50	40	0.0
2	9:25	0.50	40	0.0
3	8:00	0.24	10	0.0
3	8:25	0.24	10	0.0
3	8:30	0.20	20	0.0
3	8:55	0.24	20	0.0
3	9:00	0.36	40	0.0
3	9:25	0.36	40	0.0
VEW-2 Step Test Results				
4	10:50	0.28	16	0.0
4	11:25	0.26	16	0.0
4	11:30	0.44	38	0.0
4	11:55	0.44	38	0.0
4	12:00	0.52	50	0.0
4	12:25	0.52	50	0.0
5	10:50	0.26	16	0.0
5	11:25	0.24	16	0.0
5	11:30	0.42	38	0.0
5	11:55	0.40	38	0.0
5	12:00	0.46	50	0.0
5	12:25	0.47	50	0.0
6	10:50	0.10	16	0.0
6	11:25	0.10	16	0.0
6	11:30	0.18	38	0.0
6	11:55	0.18	38	0.0
6	12:00	0.18	50	0.0
6	12:25	0.19	50	0.0

TABLE 5
SVE STEP TEST PERFORMANCE MONITORING DATA
FOR PILOT TEST MONITORING WELLS

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

PTMW ID	Time (EST)	PTMW Vacuum Pressure (in H_20)	Blower Vacuum Pressure (in H_20)	PPB RAE Reading (ppb)
VEW-3 Step Test Results				
7	13:00	0.17	15	0.0
7	13:25	0.18	15	0.0
7	13:30	0.34	30	0.0
7	13:55	0.36	30	0.0
7	14:00	0.64	63	0.0
7	14:25	0.63	63	0.0
8	13:00	0.12	15	0.0
8	13:25	0.10	15	0.0
8	13:30	0.20	30	0.0
8	13:55	0.20	30	0.0
8	14:00	0.24	63	0.0
8	14:25	0.33	63	0.0
9	13:00	0.03	15	0.0
9	13:25	0.04	15	0.0
9	13:30	0.04	30	0.0
9	13:55	0.04	30	0.0
9	14:00	0.11	63	0.0
9	14:25	0.11	63	0.0

Notes:
1. Step testing was performed by ARCADIS of New York, Inc. (ARCADIS BBL) on October 2, 2007.
2. The blower used for the step testing was a ROOTS Frame 53 Universal RAI Rotary Positive Blower with a 2-inch diameter inlet/outlet.
3. VEW = vapor extraction well.
4. PTMW = pilot test monitoring well.
5. EST = Eastern Standard Time.
6. in H_2O = inches of water column.
7. ppb = parts per billion.

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
Blower Type: ROOTS Frame 53 Universal RAI Rotary Positive Blower										
10/3/07	35.0	VEW-1	66.7	7.5	--	--	0.0	No	PTMW-1	0.24
									PTMW-2	0.15
									PTMW-3	0.10
		VEW-2	57.9	10.5	--	--	0.0	No	PTMW-4	0.28
									PTMW-5	0.27
									PTMW-6	0.11
		VEW-3	62.2	13.5	--	--	0.0	No	PTMW-7	0.22
									PTMW-8	0.15
									PTMW-9	0.04
Blower Type: Gardner Denver 3LV-THC, GABLAPA										
10/24/07	40.0	VEW-1	66.7	18.0	450	39.3	--	No	PTMW-1	0.45
									PTMW-2	0.30
									PTMW-3	0.22
		VEW-2	57.9	10.0	950	82.9 *	--	Yes	PTMW-4	0.31
									PTMW-5	0.24
									PTMW-6	0.14
		VEW-3	62.2	31.0	1,450	126.5 *	--	Yes	PTMW-7	0.61
									PTMW-8	0.32
									PTMW-9	0.11
		Combined Influent (Before blower)	64.7	40.0	2,500	218.2 *	--	No	NA	NA
11/1/07	40.0	VEW-1	66.7	26.5	735	64.1	0.0	No	PTMW-1	0.60
									PTMW-2	0.41
									PTMW-3	0.30
		VEW-2	57.9	10.0	671	58.6 *	0.0	Yes	PTMW-4	0.32
									PTMW-5	0.24
									PTMW-6	0.14
		VEW-3	62.2	27.0	1,034	90.2 *	0.0	Yes	PTMW-7	0.45
									PTMW-8	0.30
									PTMW-9	0.11
		Combined Influent (Before blower)	59.8	40.0	2,371	206.9 *	--	No	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
11/9/07	50.0-60.0	VEW-1	52.3	29.0	584	51.0	--	No	PTMW-1	0.64
									PTMW-2	0.42
									PTMW-3	0.30
		VEW-2	51.4	7.0	398	34.7 *	--	Yes	PTMW-4	0.21
									PTMW-5	0.18
									PTMW-6	0.11
		VEW-3	54.3	28.0	1,231	107.4 *	--	Yes	PTMW-7	0.46
									PTMW-8	0.30
									PTMW-9	0.11
		Combined Influent (Before blower)	52.9	--	5,438	474.6 *	--	No	NA	NA
11/16/07	50.0-55.0	VEW-1	50.7	23.0	556	48.5	--	No	PTMW-1	0.75
									PTMW-2	0.48
									PTMW-3	0.34
		VEW-2	46.3	8.0	468	40.8 *	--	No	PTMW-4	0.22
									PTMW-5	0.16
									PTMW-6	0.12
		VEW-3	48.9	30.0	1,078	94.1 *	--	No	PTMW-7	0.56
									PTMW-8	0.35
									PTMW-9	0.12
		Combined Influent (Before blower)	46.9	--	4,850	423.2 *	--	No	NA	NA
12/5/07	38.0	VEW-1	45.6	20.0	462	40.3	--	Yes	PTMW-1	0.75
									PTMW-2	0.48
									PTMW-3	0.34
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	40.9	--	1,134	99.0	--	No	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
12/12/07	50.0	VEW-1	44.2	21.0	621	54.2	--	Yes	PTMW-1	0.66
									PTMW-2	0.54
									PTMW-3	0.40
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	45.4	--	1,398	122.0	--	No	NA	NA
12/20/07	50.0	VEW-1	44.0	19.5	545	47.6	--	Yes	PTMW-1	0.78
									PTMW-2	0.48
									PTMW-3	0.34
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	45.8	--	1,557	135.9	--	No	NA	NA
12/27/07	48.0	VEW-1	47.2	18.5	760	66.3	--	Yes	PTMW-1	0.84
									PTMW-2	0.50
									PTMW-3	0.34
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	47.2	--	1,526	133.2	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
1/3/08	52.0	VEW-1	37.7	18.0	459	40.1	--	--	PTMW-1	0.86
									PTMW-2	0.51
									PTMW-3	0.34
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	37.3	--	1,353	118.1	--	--	NA	NA
1/10/08	49.0	VEW-1	51.2	17.0	892	77.8	--	Yes	PTMW-1	0.90
									PTMW-2	0.53
									PTMW-3	0.35
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	50.8	--	1,510	131.8	--	Yes	NA	NA
1/17/08	49.0	VEW-1	42.4	16.0	990	86.4	--	Yes	PTMW-1	0.84
									PTMW-2	0.50
									PTMW-3	0.29
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	43.5	--	1,620	141.4	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
1/25/08	59.0	VEW-1	34.5	12.0	540	47.1	--	--	PTMW-1	0.61
									PTMW-2	0.38
									PTMW-3	0.24
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	38.6	--	1,350	117.8	--	--	NA	NA
1/31/08	52.0	VEW-1	44.4	14.0	560	48.9	--	Yes	PTMW-1	0.72
									PTMW-2	0.41
									PTMW-3	0.27
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	48.0	--	1,340	116.9	--	Yes	NA	NA
2/5/08	50.0	VEW-1	47.6	16.0	701	61.2	--	Yes	PTMW-1	0.81
									PTMW-2	0.47
									PTMW-3	0.32
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	52.5	--	1,426	124.4	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
2/15/08	48.0	VEW-1	41.1	14.0	721	62.9	--	--	PTMW-1	0.76
									PTMW-2	0.45
									PTMW-3	0.29
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	41.3	--	1,453	126.8	--	--	NA	NA
2/19/08	49.0	VEW-1	40.6	14.0	884	77.1	--	Yes	PTMW-1	0.81
									PTMW-2	0.46
									PTMW-3	0.28
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	46.7	--	1,392	121.5	--	Yes	NA	NA
2/29/08	48.0	VEW-1	40.8	13.0	672	58.6	--	Yes	PTMW-1	--
									PTMW-2	0.48
									PTMW-3	0.32
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	46.2	--	1,831	159.8	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
3/7/08	49.0	VEW-1	43.3	15.0	880	76.8	--	Yes	PTMW-1	0.79
									PTMW-2	0.41
									PTMW-3	0.27
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	43.8	--	1,495	130.5	--	Yes	NA	NA
3/11/08	49.0	VEW-1	47.1	14.0	673	58.7	--	Yes	PTMW-1	0.83
									PTMW-2	0.51
									PTMW-3	0.35
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	51.3	--	1,561	136.2	--	Yes	NA	NA
3/20/08	52.0	VEW-1	41.9	17.0	896	78.2	--	Yes	PTMW-1	0.85
									PTMW-2	0.47
									PTMW-3	0.31
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	47.6	--	1,549	135.2	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
3/28/08	48.0	VEW-1	42.3	16.0	745	65.0	--	Yes	PTMW-1	0.79
									PTMW-2	0.43
									PTMW-3	0.24
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	47.1	--	1,553	135.5	--	Yes	NA	NA
4/1/08	52.0	VEW-1	46.1	18.0	760	66.3	--	Yes	PTMW-1	0.89
									PTMW-2	0.51
									PTMW-3	0.32
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	48.6	--	1610	140.5	--	Yes	NA	NA
4/8/08	53.0	VEW-1	48.1	19.0	785	68.5	--	Yes	PTMW-1	0.87
									PTMW-2	0.56
									PTMW-3	0.30
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	48.7	--	1649	143.9	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
4/10/08	--	VEW-1	--	--	--	--	--	Yes	PTMW-1	--
									PTMW-2	--
									PTMW-3	--
		VEW-2	48.3	13.0	840	73.3	--	--	PTMW-4	0.45
									PTMW-5	0.30
									PTMW-6	0.13
		VEW-3	53.7	17.0	1040	90.8	--	--	PTMW-7	0.39
									PTMW-8	0.24
									PTMW-9	0.12
		Combined Influent (Before blower)	--	--	--	--	--	Yes	NA	NA
4/14/08	51.0	VEW-1	48.6	16.0	720	62.8	--	Yes	PTMW-1	0.71
									PTMW-2	0.43
									PTMW-3	0.26
		VEW-2	48.4	14.0	820	71.6	--	--	PTMW-4	0.40
									PTMW-5	0.26
									PTMW-6	0.16
		VEW-3	49.1	15.0	980	85.5	--	--	PTMW-7	0.49
									PTMW-8	0.33
									PTMW-9	0.15
		Combined Influent (Before blower)	48.9	--	1480	129.2	--	Yes	NA	NA
4/23/08	--	VEW-1	60.5	10.0	886	77.3	--	Yes	PTMW-1	0.68
									PTMW-2	0.31
									PTMW-3	0.17
		VEW-2	60.5	7.0	850	74.2	--	--	PTMW-4	0.38
									PTMW-5	0.17
									PTMW-6	0.10
		VEW-3	60.0	8.0	753	65.7	--	--	PTMW-7	0.34
									PTMW-8	0.14
									PTMW-9	0.09
		Combined Influent (Before blower)	--	--	--	--	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
4/28/08	--	VEW-1	57.3	10.0	871	76.0	--	Yes	PTMW-1	0.59
									PTMW-2	0.29
									PTMW-3	0.14
		VEW-2	57.2	8.0	820	71.6	--	--	PTMW-4	0.35
									PTMW-5	0.16
									PTMW-6	0.09
		VEW-3	57.0	7.0	737	64.3	--	--	PTMW-7	0.31
									PTMW-8	0.15
									PTMW-9	0.08
		Combined Influent (Before blower)	--	--	--	--	--	Yes	NA	NA
5/8/08	--	VEW-1	62.0	12.0	1004	87.6	--	Yes	PTMW-1	0.57
									PTMW-2	0.26
									PTMW-3	0.13
		VEW-2	61.7	10.0	867	75.7	--	--	PTMW-4	0.43
									PTMW-5	0.15
									PTMW-6	0.10
		VEW-3	61.8	9.0	808	70.5	--	--	PTMW-7	0.33
									PTMW-8	0.17
									PTMW-9	0.09
		Combined Influent (Before blower)	--	--	--	--	--	Yes	NA	NA
5/15/08	48.0	VEW-1	61.6	14.0	1012	88.3	--	Yes	PTMW-1	0.36
									PTMW-2	0.27
									PTMW-3	0.13
		VEW-2	61.2	13.0	920	80.3	--	--	PTMW-4	0.32
									PTMW-5	0.24
									PTMW-6	0.11
		VEW-3	58.9	13.0	856	74.7	--	--	PTMW-7	0.33
									PTMW-8	0.25
									PTMW-9	0.12
		Combined Influent (Before blower)	65.6	--	1130	98.6	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
5/22/08	19.0	VEW-1	52.7	15.0	1021	89.1	--	Yes	PTMW-1	0.47
									PTMW-2	0.32
									PTMW-3	0.16
		VEW-2	52.6	14.0	926	80.8	--	--	PTMW-4	0.35
									PTMW-5	0.29
									PTMW-6	0.13
		VEW-3	52.4	11.0	862	75.2	--	--	PTMW-7	0.30
									PTMW-8	0.22
									PTMW-9	0.11
		Combined Influent (Before blower)	56.0	--	1123	98.0	--	Yes	NA	NA
5/30/08	19.0	VEW-1	62.0	14.0	901	78.6	--	Yes	PTMW-1	0.39
									PTMW-2	0.28
									PTMW-3	0.14
		VEW-2	51.6	13.0	848	74.0	--	--	PTMW-4	0.36
									PTMW-5	0.27
									PTMW-6	0.12
		VEW-3	51.4	10.0	809	70.6	--	--	PTMW-7	0.31
									PTMW-8	0.23
									PTMW-9	0.10
		Combined Influent (Before blower)	54.0	--	957	83.5	--	Yes	NA	NA
6/3/08	28.0	VEW-1	68.9	13.0	1078	94.1	--	Yes	PTMW-1	0.37
									PTMW-2	0.24
									PTMW-3	0.13
		VEW-2	64.2	15.0	907	79.2	--	--	PTMW-4	0.39
									PTMW-5	0.28
									PTMW-6	0.14
		VEW-3	65.4	14.0	863	75.3	--	--	PTMW-7	0.37
									PTMW-8	0.25
									PTMW-9	0.13
		Combined Influent (Before blower)	75.1	--	1130	98.6	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
6/12/08	20.0	VEW-1	70.6	12.0	1032	90.1	--	Yes	PTMW-1	0.35
									PTMW-2	0.22
									PTMW-3	0.12
		VEW-2	70.5	12.0	971	84.7	--	--	PTMW-4	0.32
									PTMW-5	0.21
									PTMW-6	0.11
		VEW-3	65.3	13.0	848	74.0	--	--	PTMW-7	0.34
									PTMW-8	0.24
									PTMW-9	0.12
		Combined Influent (Before blower)	82.5	--	1050	91.6	--	Yes	NA	NA
6/18/08	19.0	VEW-1	64.1	13.0	910	79.4	--	Yes	PTMW-1	0.34
									PTMW-2	0.23
									PTMW-3	0.11
		VEW-2	63.0	13.0	867	75.7	--	--	PTMW-4	0.33
									PTMW-5	0.23
									PTMW-6	0.12
		VEW-3	62.1	14.0	809	70.6	--	--	PTMW-7	0.31
									PTMW-8	0.22
									PTMW-9	0.11
		Combined Influent (Before blower)	78.4	--	1018	88.8	--	Yes	NA	NA
6/26/08	26.0	VEW-1	71.7	19.0	927	80.9	--	Yes	PTMW-1	0.38
									PTMW-2	0.29
									PTMW-3	0.16
		VEW-2	69.4	10.0	817	71.3	--	--	PTMW-4	0.32
									PTMW-5	0.21
									PTMW-6	0.10
		VEW-3	69.6	15.0	962	84.0	--	--	PTMW-7	0.36
									PTMW-8	0.23
									PTMW-9	0.13
		Combined Influent (Before blower)	75.5	--	1138	99.3	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
7/1/08	28.0	VEW-1	71.4	18.0	1013	88.4	--	Yes	PTMW-1	0.36
									PTMW-2	0.26
									PTMW-3	0.12
		VEW-2	65.6	10.0	1035	90.3	--	--	PTMW-4	0.31
									PTMW-5	0.22
									PTMW-6	0.11
		VEW-3	66.1	13.0	941	82.1	--	--	PTMW-7	0.33
									PTMW-8	0.25
									PTMW-9	0.12
		Combined Influent (Before blower)	78.6	--	1181	103.1	--	Yes	NA	NA
7/9/08	27.0	VEW-1	73.5	19.0	1135	99.0	--	Yes	PTMW-1	0.38
									PTMW-2	0.26
									PTMW-3	0.15
		VEW-2	66.3	9.0	1044	91.1	--	--	PTMW-4	0.30
									PTMW-5	0.40
									PTMW-6	0.10
		VEW-3	72.3	14.0	1080	94.2	--	--	PTMW-7	0.32
									PTMW-8	0.24
									PTMW-9	0.13
		Combined Influent (Before blower)	80.4	--	1205	105.2	--	Yes	NA	NA
7/15/08	28.0	VEW-1	71.9	19.0	1234	107.7	--	Yes	PTMW-1	0.39
									PTMW-2	0.28
									PTMW-3	0.15
		VEW-2	67.1	11.0	1117	97.5	--	--	PTMW-4	0.33
									PTMW-5	0.25
									PTMW-6	0.12
		VEW-3	67.2	16.0	1149	100.3	--	--	PTMW-7	0.34
									PTMW-8	0.25
									PTMW-9	0.13
		Combined Influent (Before blower)	71.6	--	1320	115.2	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
7/22/08	26.0	VEW-1	71.7	19.0	1206	105.2	--	Yes	PTMW-1	0.37
									PTMW-2	0.27
									PTMW-3	0.25
		VEW-2	68.2	12.0	1106	96.5	--	--	PTMW-4	0.32
									PTMW-5	0.25
									PTMW-6	0.12
		VEW-3	67.9	15.0	1098	95.8	--	--	PTMW-7	0.35
									PTMW-8	0.24
									PTMW-9	0.13
		Combined Influent (Before blower)	72.1	--	1357	118.4	--	Yes	NA	NA
8/5/08	25.0	VEW-1	78.7	15.0	867	75.7	--	Yes	PTMW-1	0.37
									PTMW-2	0.24
									PTMW-3	0.10
		VEW-2	71.2	10.0 / 14.0	803	70.1	--	--	PTMW-4	0.30 / 0.33
									PTMW-5	0.22 / 0.23
									PTMW-6	0.10 / 0.10
		VEW-3	75.6	8.0 / 13.0	815	71.1	--	--	PTMW-7	0.31 / 0.35
									PTMW-8	0.23 / 0.24
									PTMW-9	0.11 / 0.11
		Combined Influent (Before blower)	83.1	--	1208	105.4	--	Yes	NA	NA
8/12/08	--	VEW-1	72.1	18.0	1015	88.6	--	Yes	PTMW-1	0.35
									PTMW-2	0.26
									PTMW-3	0.11
		VEW-2	71.8	16.0	925	80.7	--	--	PTMW-4	0.33
									PTMW-5	0.24
									PTMW-6	0.12
		VEW-3	70.8	16.0	1065	92.9	--	--	PTMW-7	0.36
									PTMW-8	0.25
									PTMW-9	0.11
		Combined Influent (Before blower)	--	--	--	--	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
8/20/08	38.0	VEW-1	72.1	28.0	1369	119.5	--	Yes	PTMW-1	0.47
									PTMW-2	0.36
									PTMW-3	0.17
		VEW-2	71.3	19.0	970	84.6	--	--	PTMW-4	0.36
									PTMW-5	0.26
									PTMW-6	0.12
		VEW-3	--	--	--	--	--	--	PTMW-7	--
									PTMW-8	--
									PTMW-9	--
		Combined Influent (Before blower)	76.0	--	1310	114.3	--	Yes	NA	NA
8/22/08	--	VEW-1	--	--	--	--	--	--	PTMW-1	--
									PTMW-2	--
									PTMW-3	--
		VEW-2	--	--	--	--	--	--	PTMW-4	--
									PTMW-5	--
									PTMW-6	--
		VEW-3	73.0	16.0	980	85.5	--	--	PTMW-7	0.33
									PTMW-8	0.21
									PTMW-9	0.11
		Combined Influent (Before blower)	--	--	--	--	--	--	NA	NA
8/28/08	15.0	VEW-1	76.7	13.0	757	66.1	--	Yes	PTMW-1	0.33
									PTMW-2	0.23
									PTMW-3	0.12
		VEW-2	66.3	12.0	880	76.8	--	--	PTMW-4	0.32
									PTMW-5	0.24
									PTMW-6	0.11
		VEW-3	72.3	12.0	914	79.8	--	--	PTMW-7	0.30
									PTMW-8	0.22
									PTMW-9	0.10
		Combined Influent (Before blower)	80.0	--	980	85.5	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Blower Vacuum Pressure (in H_2O)	VEW ID	Vapor Temperature (°F)	VEW Vacuum Pressure (in H_2O)	Approximate Flow Velocity (fpm)	Approximate Flow Rate (cfm)	PPB RAE Reading (ppb)	Condensation Observed (Yes/No)	PTMW ID	PTMW Vacuum Pressure (in H_2O)
9/6/08	26.0	VEW-1	77.1	14.0	803	70.1	--	Yes	PTMW-1	0.36
									PTMW-2	0.23
									PTMW-3	0.11
		VEW-2	67.1	11.0	760	66.3	--	--	PTMW-4	0.29
									PTMW-5	0.22
									PTMW-6	0.10
		VEW-3	70.1	12.0	890	77.7	--	--	PTMW-7	0.31
									PTMW-8	0.22
									PTMW-9	0.10
		Combined Influent (Before blower)	70.9	--	1284	112.1	--	Yes	NA	NA
9/10/08	15.0	VEW-1	70.8 / 70.8	12.0 / 6.0	607 / 381	53.0 / 33.2	--	Yes	PTMW-1	0.57 / 0.24
									PTMW-2	0.36 / 0.15
									PTMW-3	0.24 / 0.11
		VEW-2	63.4 / 63.4	10.0 / 10.0	1021 / 985	89.1 / 86.0	--	--	PTMW-4	0.27 / 0.28
									PTMW-5	0.20 / 0.21
									PTMW-6	0.10 / 0.10
		VEW-3	65.3 / 65.2	9.0 / 10.0	523 / 691	45.6 / 60.3	--	--	PTMW-7	0.19 / 0.24
									PTMW-8	0.14 / 0.17
									PTMW-9	0.05 / 0.06
		Combined Influent (Before blower)	71.5	--	377	32.9	--	Yes	NA	NA

TABLE 6
SVE SYSTEM EXTENDED PILOT TEST PERFORMANCE MONITORING DATA

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Notes:

1. Soil vapor extraction system O&M data collected by ARCADIS of New York, Inc. (ARCADIS BBL) on the dates indicated.
2. VEW = vapor extraction well
3. PTMW = pilot test monitoring well
4. in H_2O = inches of water column
5. °F = degrees Fahrenheit
6. fpm = feet per minute.
7. cfm = cubic feet per minute.
8. ppb = parts per billion
9. The blower used for the step test on October 3, 2007 was a ROOTS Frame 53 Universal RAI Rotary Positive Blower with a 2-inch inlet/outlet.
10. The ROOTS blower was used until October 23, 2007 and was replaced on October 24, 2007 with a Gardner Denver 3LV-THC, GABLAPA with a 3-inch inlet/outlet.
11. Vapor extraction well vapor temperature and approximate flow velocity was measured using a Dwyer Series 471 thermo-anemometer by inserting the anemometer probe into a port approximately two feet from the vapor extraction well head. The probe is inserted approximately 2-inches into the 4-inch pipe.
12. Combined influent vapor temperature and approximate flow velocity is measured using a Dwyer Series 471 thermo-anemometer by inserting the anemometer probe into a port approximately six feet before the SVE system blower. The probe is inserted into the 4-inch piping approximately 2-inches.
13. NA = Not applicable.
14. -- Not measured.
15. Condensation was removed from SVE piping on November 16, 2007 by disconnecting piping at low points, allowing the water to drain via gravity, and then re-assembling the piping using couplings.
16. Soil vapor extraction system automatically shut down on November 20, 2007 due to ice in the SVE conveyance piping to VEW-2 and VEW-3 causing low air flow. Condensation was subsequently removed from VEW-2 and VEW-3 SVE conveyance piping on November 28, 2007 by disconnecting piping at low points and allowing the water to drain via gravity.
17. Soil vapor extraction system was re-started on December 5, 2007, extracting vapor only from VEW-1. (little to no condensation accumulation was observed in the SVE conveyance piping from VEW-1)
18. * = Approximate flow rate may be lower due to the presence of condensation in the conveyance piping decreasing the coss-sectional area of flow through the piping.

TABLE 7
SVE PILOT TEST OPERATIONAL HISTORY

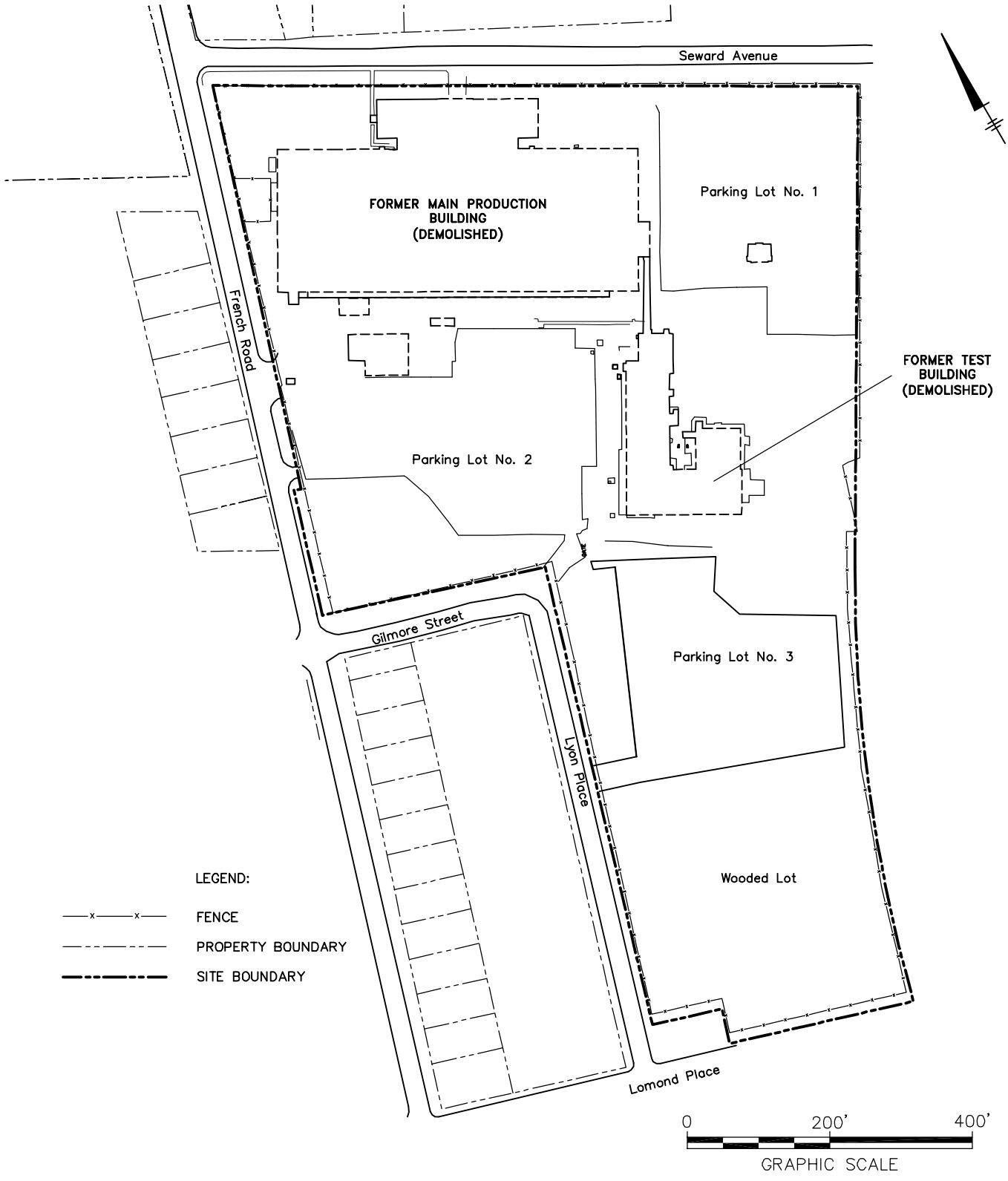
SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

Date	Activity
10/3/2007 - 10/5/2007	The SVE system trailer installed for the step-test was used to temporarily extract vapors from VEW-1, VEW-2, and VEW-3 until it was demobilized on October 5, 2007 for step-test use on another previously scheduled project.
10/15/2007 - 10/23/2007	The SVE step-test trailer system was returned to the site and used to continue pilot test operations, extracting vapors from VEW-1, VEW-2, and VEW-3 (pending arrival of a different SVE trailer suited for long-term operation).
10/24/2007	ARCADIS installed an SVE trailer-mounted system to operate through the remainder of the extended pilot test.
11/20/2007	SVE system automatically shut down due to ice accumulation inside the conveyance piping that caused the vapor flow to be restricted. The conveyance piping was drained of water and ice and the system was restarted.
12/5/2007	SVE system shut down to discontinue soil vapor extraction from VEW-2 and VEW-3 during the winter. After reconfiguring, SVE system was restarted, extracting vapors from VEW-1 only.
1/3/2008, 1/25/2008, 2/15/2008, 2/29/2008, 3/11/2008	During certain routine weekly OM&M site visits during winter months, the SVE system technician discovered that the SVE system had automatically shut off due to a frozen belt, power interruption, etc. Adjustments were made, and the system was re-started on each of those site visits.
7/23/2008	The belt tensioner under the blower motor was removed for repair causing the system to be temporarily shut down.
7/31/2008	The belt tensioner was reinstalled along with new belts. The system was restarted, extracting vapors from VEW-1, VEW-2 and VEW-3.
8/20/2008	During routine weekly OM&M, no vapor was being extracted from VEW-3 due to the conveyance piping containing excessive water. Water was drained from the aboveground conveyance piping, but excessive water remained in the underground conveyance piping in the parking lot area. Extraction from VEW-3 was discontinued until the water could be removed from the underground section of piping. Extraction continued from VEW-1 and VEW-2.
8/22/2008	Water was pumped from underground conveyance piping for VEW-3, and extraction was continued from VEW-3. SVE system was again extracting from all on-site VEWs.
9/30/2008	SVE extended pilot test completed.
10/7/2008	SVE system shutdown.

Notes:
1. Soil vapor extraction activity data collected by ARCADIS personnel on the dates indicated.
2. SVE = soil vapor extraction.
3. VEW = vapor extraction well.

ARCADIS

Figures



NOTES:

1. UNLESS OTHERWISE INDICATED, MAPPING IS BASED ON SURV PERFORMED BY ARCADIS BBL, MARCH 19, 2003 TO FEBRUARY 2004.

2. PROPERTY LINES, ROADWAYS, AND PREVIOUS TEMPORARY MONITORING WELL/TEST BORING LOCATIONS AND WELL LOCATIOI B85-1 ARE ADAPTED FROM A DRAWING ENTITLED "SITE LAYOU MAP SHOWING AREAS OF CONCERN", FIGURE 1-1, BY ENVIRONMENTAL RESOURCES MANAGEMENT (ERM), EXTON, PA., A SCALE OF 1"=40', DATED 08/27/02.

FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

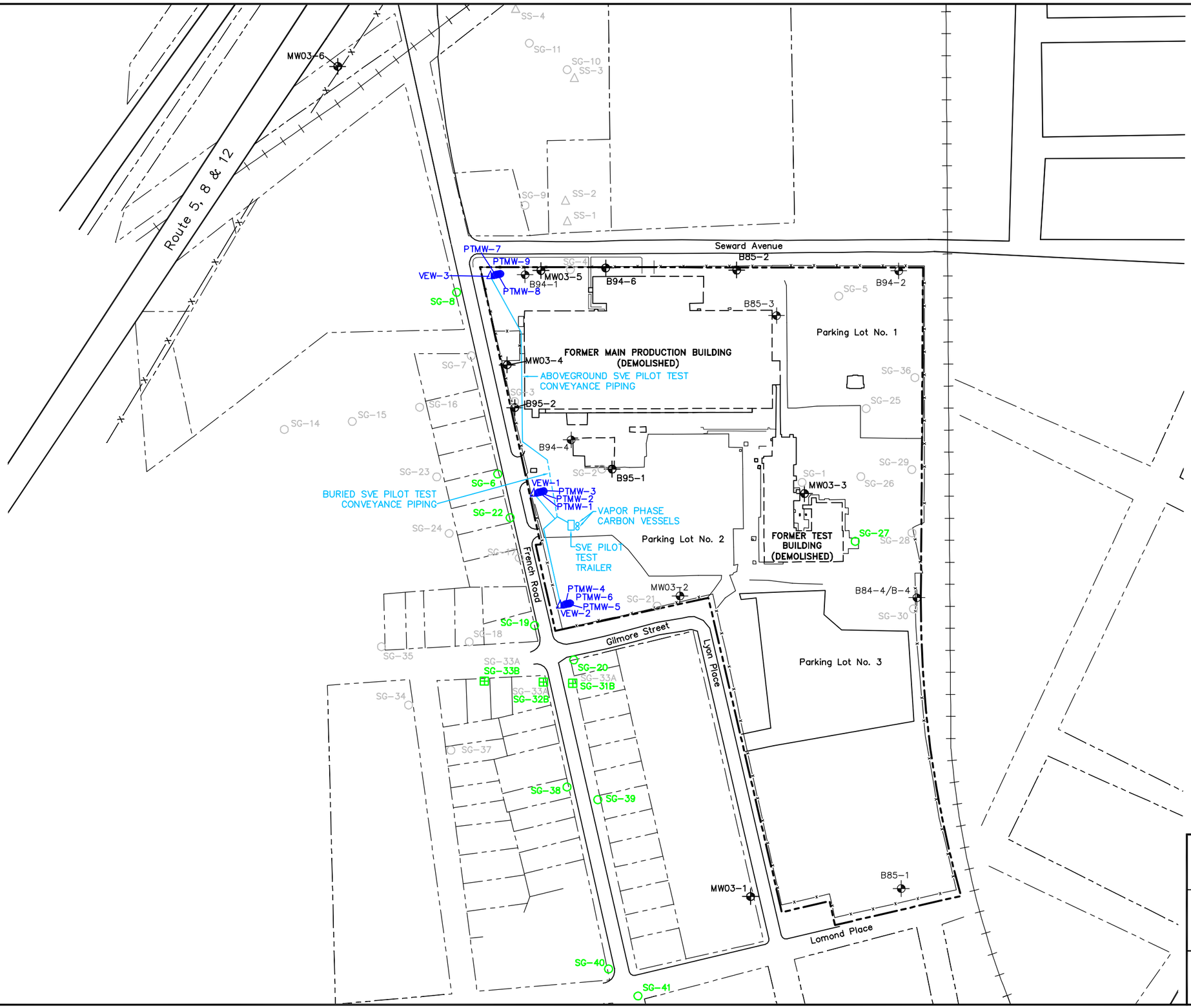
SVE PILOT TEST SUMMARY REPORT

SITE MAP

ARCADIS

FIGURE
1

CITY:SYRACUSE DIV/GROUP:ENV/141 DB: PGL KFS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\CAD\ACT\B0037125\0000\000F\DWG\SVEPTSR\37125B01.DWG LAYOUT: 1SAVED: 9/30/2008 1:27 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: C:\PA-PDF.PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/30/2008 1:27 PM BY: STINSON, KATE
XREFS: IMAGES: PROJECTNAME: ---
37125X02



LEGEND:

- SG-38 ○ SOIL GAS PROBE INCLUDED IN SVE PILOT TEST MONITORING
- SG-31 ⊞ MULTI-LEVEL SOIL GAS PROBES (ONLY THE DEEP ["B"] PROBES WERE INCLUDED IN SVE PILOT TEST MONITORING
- SG-2 ○ SOIL GAS PROBE NOT INCLUDED IN PILOT TEST MONITORING
- SS-3 △ SUB-SLAB VAPOR SAMPLE LOCATION
- B85-3 ⊕ PERMANENT GROUNDWATER MONITORING WELL
- VEW-1 ▲ VAPOR EXTRACTION WELL
- PTMW-1 ● PILOT TEST MONITORING WELL
- —X— FENCE
- — — — PROPERTY BOUNDARY
- ▬ ▬ ▬ SITE BOUNDARY

NOTES:

1. UNLESS OTHERWISE INDICATED, MAPPING IS BASED ON SURVEYS PERFORMED BY ARCADIS BBL, MARCH 19, 2003 TO APRIL 2007.
2. PROPERTY LINES AND ROADWAYS ARE ADAPTED FROM A DRAWING ENTITLED "SITE LAYOUT MAP SHOWING AREAS OF CONCERN", FIGURE 1-1, BY ENVIRONMENTAL RESOURCES MANAGEMENT (ERM), EXTON, PA., AT A SCALE OF 1"=40', DATED 08/27/02.
3. LOCATIONS OF SOIL GAS PROBES SG-1 THROUGH SG-27 ARE BASED ON SURVEYS PERFORMED BY ARCADIS. LOCATIONS OF SVE PILOT TEST TRAILER, VAPOR PHASE CARBON VESSELS, ABOVEGROUND SVE PILOT TEST CONVEYANCE PIPING, BURIED SVE PILOT TEST CONVEYANCE PIPING, SUB-SLAB VAPOR SAMPLING LOCATIONS, AND SOIL GAS PROBES SG-28 THROUGH SG-41 ARE APPROXIMATE.

0 200' 400'
GRAPHIC SCALE

FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK
SVE PILOT TEST SUMMARY REPORT

PILOT TEST SVE SYSTEM AND SOIL GAS MONITORING LOCATIONS

ARCADIS

FIGURE **2**

CITY: SYRACUSE, NY GROUP: ENV-141 DB: PGL WLJ RCB PM: J. BRUSSEL TM: L. HEALY LYR: ON=*;OFF=REF; (FRZ)
G:\CAD\ACTIB\003712S\000000000437125B06.DWG LAYOUT: 2SAVED: 11/3/2008 5:01 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ########## PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 11/3/2008 5:02 PM BY: BASSETT, RICHARD
XREFS: IMAGES: PROJECTNAME: ---
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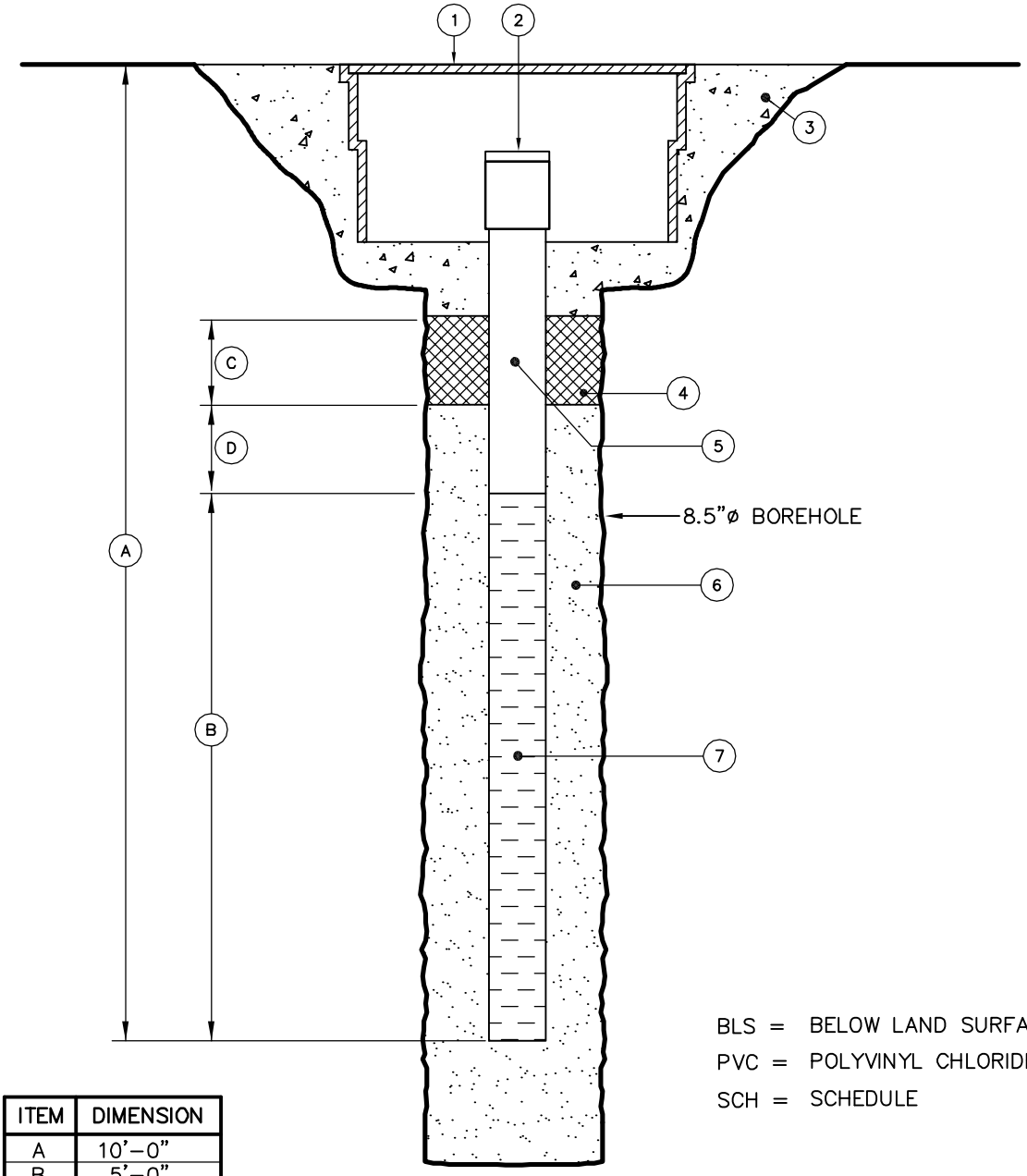


ITEM	DIMENSION
A	10'–0"
B	5'–0"
C	1'–0"
D	1'–0"

BLS = BELOW LAND SURFACE
PVC = POLYVINYL CHLORIDE
SCH = SCHEDULE

GROUNDWATER LEVEL AT 11 TO 13 FEET BLS.

ITEM	DESCRIPTION
1	8"ø STEEL MANHOLE ASSEMBLY
2	4"ø PVC CAP
3	CEMENT/ GROUT
4	FINE SAND SEAL
5	4"ø PVC SCH 40 RISER
6	20/30 SILICA SAND
7	4"ø PVC SCREEN (0.020" SLOT)

DRAWING IS NOT TO SCALE

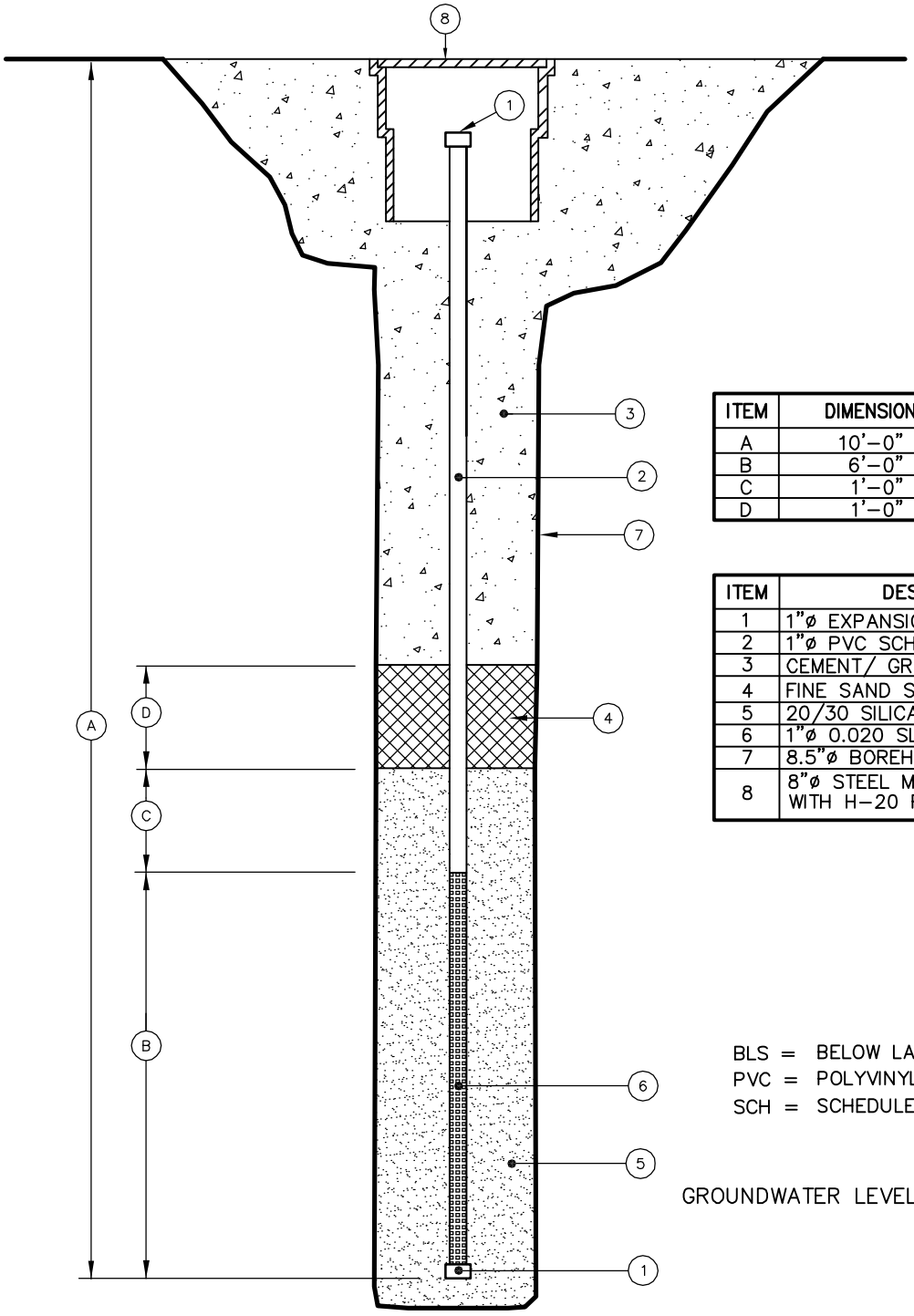
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

SVE PILOT TEST SUMMARY REPORT

VAPOR EXTRACTION WELL DETAIL

ARCADIS

FIGURE
3



ITEM	DIMENSION
A	10'–0"
B	6'–0"
C	1'–0"
D	1'–0"

ITEM	DESCRIPTION
1	1"ø EXPANSION PLUG
2	1"ø PVC SCH 40 RISER
3	CEMENT/ GROUT
4	FINE SAND SEAL
5	20/30 SILICA SAND
6	1"ø 0.020 SLOT WELL SCREEN
7	8.5"ø BOREHOLE
8	8"ø STEEL MANHOLE VAULT WITH H–20 RATED COVER

BLS = BELOW LAND SURFACE
PVC = POLYVINYL CHLORIDE
SCH = SCHEDULE

GROUNDWATER LEVEL AT 11 TO 13 FEET BLS

DRAWING IS NOT TO SCALE

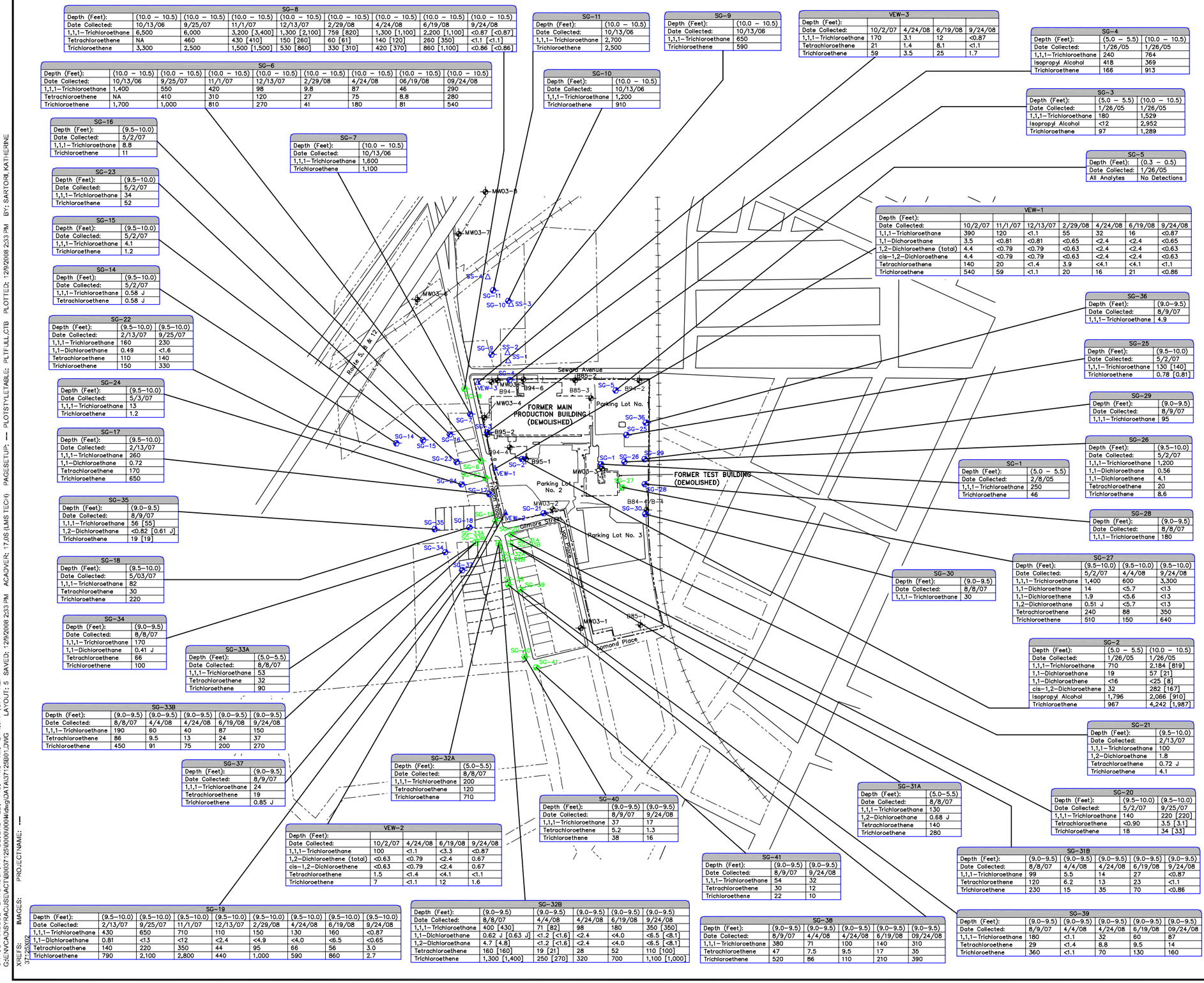
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK

SVE PILOT TEST SUMMARY REPORT

PILOT TEST MONITORING WELL DETAIL

ARCADIS

FIGURE
4



SG-8								
Depth (Feet):	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)
Date Collected:	10/13/06	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	6,500	6,000	3,200 [3,400]	1,300 [2,100]	759 [820]	1,300 [1,100]	2,200 [1,100]	<0.87 [<0.87]
Tetrachloroethene	NA	460	430 [410]	150 [260]	60 [61]	140 [120]	260 [350]	<1.1 [<1.1]
Trichloroethene	3,300	2,500	1,500 [1,500]	530 [860]	330 [310]	420 [370]	860 [1,100]	<0.86 [<0.86]

SG-11	
Depth (Feet):	(10.0 – 10.5)
Date Collected:	10/13/06
1,1,1–Trichloroethane	2,700
Trichloroethene	2,500

SG-9	
Depth (Feet):	(10.0 – 10.5)
Date Collected:	10/13/06
1,1,1–Trichloroethane	650
Trichloroethene	590

VEW-3				
Depth (Feet):				
Date Collected:	10/2/07	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	170	3.1	12	<0.87
Tetrachloroethene	21	1.4	8.1	<1.1
Trichloroethene	59	3.5	25	1.7

SG-4		
Depth (Feet):	(5.0 – 5.5)	(10.0 – 10.5)
Date Collected:	1/26/05	1/26/05
1,1,1–Trichloroethane	240	764
Isopropyl Alcohol	418	369
Trichloroethene	166	913

SG-6								
Depth (Feet):	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)	(10.0 – 10.5)
Date Collected:	10/13/06	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	06/19/08	09/24/08
1,1,1–Trichloroethane	1,400	550	420	98	9.8	87	46	290
Tetrachloroethene	NA	410	310	120	27	75	8.8	280
Trichloroethene	1,700	1,000	810	270	41	180	81	540

SG-10	
Depth (Feet):	(10.0 – 10.5)
Date Collected:	10/13/06
1,1,1–Trichloroethane	1,200
Trichloroethene	910

SG-3		
Depth (Feet):	(5.0 – 5.5)	(10.0 – 10.5)
Date Collected:	1/26/05	1/26/05
1,1,1–Trichloroethane	180	1,529
Isopropyl Alcohol	<12	2,952
Trichloroethene	97	1,289

SG-16	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	8.8
Trichloroethene	11

SG-7	
Depth (Feet):	(10.0 – 10.5)
Date Collected:	10/13/06
1,1,1–Trichloroethane	1,600
Trichloroethene	1,100

SG-5	
Depth (Feet):	(0.3 – 0.5)
Date Collected:	1/26/05
All Analytes	No Detections

SG-23	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	34
Trichloroethene	52

VEW-1							
Depth (Feet):							
Date Collected:	10/2/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	390	120	<1.1	55	32	16	<0.87
1,1–Dichloroethane	3.5	<0.81	<0.81	<0.65	<2.4	<2.4	<0.65
1,2–Dichloroethene (total)	4.4	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63
cis–1,2–Dichloroethene	4.4	<0.79	<0.79	<0.63	<2.4	<2.4	<0.63
Tetrachloroethene	140	20	<1.4	3.9	<4.1	<4.1	<1.1
Trichloroethene	540	59	<1.1	20	16	21	<0.86

SG-15	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	4.1
Trichloroethene	1.2

SG-36	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/9/07
1,1,1–Trichloroethane	4.9

SG-14	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	0.58 J
Tetrachloroethene	0.58 J

SG-25	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	130 [140]
Trichloroethene	0.78 [0.81]

SG-22		
Depth (Feet):	(9.5–10.0)	(9.5–10.0)
Date Collected:	2/13/07	9/25/07
1,1,1–Trichloroethane	160	230
1,1–Dichloroethene	0.49	<1.6
Tetrachloroethene	110	140
Trichloroethene	150	330

SG-29	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/9/07
1,1,1–Trichloroethane	95

SG-24	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/3/07
1,1,1–Trichloroethane	13
Trichloroethene	1.2

SG-26	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/2/07
1,1,1–Trichloroethane	1,200
1,1–Dichloroethene	0.56
1,1–Dichloroethene	4.1
Tetrachloroethene	20
Trichloroethene	8.6

SG-1	
Depth (Feet):	(5.0 – 5.5)
Date Collected:	2/8/05
1,1,1–Trichloroethane	250
Trichloroethene	46

SG-17	
Depth (Feet):	(9.5–10.0)
Date Collected:	2/13/07
1,1,1–Trichloroethane	260
1,1–Dichloroethene	0.72
Tetrachloroethene	170
Trichloroethene	650

SG-28	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	180

SG-35	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/9/07
1,1,1–Trichloroethane	56 [55]
1,2–Dichloroethane	<0.82 [0.61 J]
Trichloroethene	19 [19]

SG-30	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	30

SG-27			
Depth (Feet):	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)
Date Collected:	5/2/07	4/4/08	9/24/08
1,1,1–Trichloroethane	1,400	600	3,300
1,1–Dichloroethane	14	<5.7	<13
1,1–Dichloroethene	1.9	<5.6	<13
1,2–Dichloroethane	0.51 J	<5.7	<13
Tetrachloroethene	240	88	350
Trichloroethene	510	150	640

SG-18	
Depth (Feet):	(9.5–10.0)
Date Collected:	5/03/07
1,1,1–Trichloroethane	82
Tetrachloroethene	30
Trichloroethene	220

SG-2		
Depth (Feet):	(5.0 – 5.5)	(10.0 – 10.5)
Date Collected:	1/26/05	1/26/05
1,1,1–Trichloroethane	710	2,184 [819]
1,1–Dichloroethane	19	57 [21]
1,1–Dichloroethene	<16	<25 [8]
cis–1,2–Dichloroethene	32	282 [167]
Isopropyl Alcohol	1,796	2,066 [910]
Trichloroethene	967	4,242 [1,987]

SG-34	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	170
1,1–Dichloroethane	0.41 J
Tetrachloroethene	66
Trichloroethene	100

SG-33A	
Depth (Feet):	(5.0–5.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	53
Tetrachloroethene	32
Trichloroethene	90

SG-21	
Depth (Feet):	(9.5–10.0)
Date Collected:	2/13/07
1,1,1–Trichloroethane	100
1,2–Dichloroethane	1.8
Tetrachloroethene	0.72 J
Trichloroethene	4.1

SG-33B					
Depth (Feet):	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/8/07	4/4/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	190	60	40	87	150
Tetrachloroethene	86	9.5	13	24	37
Trichloroethene	450	91	75	200	270

SG-32A	
Depth (Feet):	(5.0–5.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	200
Tetrachloroethene	120
Trichloroethene	710

SG-31A	
Depth (Feet):	(5.0–5.5)
Date Collected:	8/8/07
1,1,1–Trichloroethane	130
1,2–Dichloroethane	0.68 J
Tetrachloroethene	140
Trichloroethene	280

SG-20		
Depth (Feet):	(9.5–10.0)	(9.5–10.0)
Date Collected:	5/2/07	9/25/07
1,1,1–Trichloroethane	140	220 [220]
Tetrachloroethene	<0.90	3.5 [3.1]
Trichloroethene	18	34 [33]

SG-37	
Depth (Feet):	(9.0–9.5)
Date Collected:	8/9/07
1,1,1–Trichloroethane	24
Tetrachloroethene	19
Trichloroethene	0.85 J

SG-40		
Depth (Feet):	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/9/07	9/24/08
1,1,1–Trichloroethane	37	17
Tetrachloroethene	5.2	1.3
Trichloroethene	38	16

VEW-2				
Depth (Feet):				
Date Collected:	10/2/07	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	100	<1.1	<3.3	<0.87
1,2–Dichloroethene (total)	<0.63	<0.79	<2.4	0.67
cis–1,2–Dichloroethene	<0.63	<0.79	<2.4	0.67
Tetrachloroethene	1.5	<1.4	<4.1	<1.1
Trichloroethene	7	<1.1	12	1.6

SG-41		
Depth (Feet):	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/9/07	9/24/08
1,1,1–Trichloroethane	54	32
Tetrachloroethene	30	12
Trichloroethene	22	10

SG-31B					
Depth (Feet):	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/8/07	4/4/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	99	5.5	14	27	<0.87
Tetrachloroethene	120	6.2	13	23	<1.1
Trichloroethene	230	15	35	70	<0.86

SG-19								
Depth (Feet):	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)	(9.5–10.0)
Date Collected:	2/13/07	9/25/07	11/1/07	12/13/07	2/29/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	430	650	710	110	150	130	160	<0.87
1,1–Dichloroethane	0.81	<13	<12	<2.4	<4.9	<4.0	<6.5	<0.65
Tetrachloroethene	140	220	350	44	95	66	56	3.0
Trichloroethene	790	2,100	2,800	440	1,000	590	860	2.7

SG-32B					
Depth (Feet):	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/8/07	4/4/08	4/24/08	6/19/08	9/24/08
1,1,1–Trichloroethane	400 [430]	71 [82]	98	180	350 [350]
1,1–Dichloroethane	0.62 J [0.63 J]	<1.2 [<1.6]	<2.4	<4.0	<8.5 [<8.1]
1,2–Dichloroethane	4.7 [4.8]	<1.2 [<1.6]	<2.4	<4.0	<8.5 [<8.1]
Tetrachloroethene	160 [160]	19 [21]	28	52	110 [100]
Trichloroethene	1,300 [1,400]	250 [270]	320	700	1,100 [1,000]

SG-38					
Depth (Feet):	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/9/07	4/4/08	4/24/08	6/19/08	09/24/08
1,1,1–Trichloroethane	380	71	100	140	310
Tetrachloroethene	47	7.5	9.5	17	35
Trichloroethene	520	86	110	210	390

SG-39					
Depth (Feet):	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)	(9.0–9.5)
Date Collected:	8/9/07	4/4/08	4/24/08	6/19/08	09/24/08
1,1,1–Trichloroethane	180	<1.1	32	60	87
Tetrachloroethene	29	<1.4	8.8	9.5	14
Trichloroethene	360	<1.1	70	130	160

LEGEND:

- SG-38 — SOIL GAS PROBE INCLUDED IN SVE PILOT TEST MONITORING
- SG-31 — MULTI-LEVEL SOIL GAS PROBES (ONLY THE DEEP ["B"] PROBES WERE INCLUDED IN SVE PILOT TEST MONITORING
- SG-2 — SOIL GAS PROBE NOT INCLUDED IN PILOT TEST MONITORING
- SS-3 — SUB–SLAB VAPOR SAMPLE LOCATION
- B85-3 — PERMANENT GROUNDWATER MONITORING WELL
- VEW-1 — VAPOR EXTRACTION WELL
- FENCE
- PROPERTY BOUNDARY
- SITE BOUNDARY

NOTES:

1. UNLESS OTHERWISE INDICATED, MAPPING IS BASED ON SURVEYS PERFORMED BY ARCADIS BBL, MARCH 19, 2003 TO APRIL 2007.
2. PROPERTY LINES AND ROADWAYS ARE ADAPTED FROM A DRAWING ENTITLED "SITE LAYOUT MAP SHOWING AREAS OF CONCERN", FIGURE 1–1, BY ENVIRONMENTAL RESOURCES MANAGEMENT (ERM), EXTON, PA., AT A SCALE OF 1"=40', DATED 08/27/02.
3. LOCATIONS OF SOIL GAS PROBES SG–1 THROUGH SG–27 ARE BASED ON SURVEYS PERFORMED BY ARCADIS. SUB–SLAB VAPOR SAMPLING LOCATIONS, AND SOIL GAS PROBES SG–28 THROUGH SG–41 ARE APPROXIMATE.
4. SOIL GAS SAMPLE RESULTS ARE FOR SOIL VAPOR PROBES INCLUDED IN THE SOIL VAPOR EXTRACTION PILOT TEST (INCLUDES PROBES WHERE BASELINE, MONTHLY, AND BI–MONTHLY SAMPLING WAS PERFORMED).
5. SAMPLES COLLECTED BY ARCADIS DURING JANUARY 2005, FEBRUARY 2005, OCTOBER 2006, SEPTEMBER 2007, NOVEMBER 2007, DECEMBER 2007, FEBRUARY 2008, APRIL 2008, JUNE 2008, AND SEPTEMBER 2008 WERE ANALYZED BY TESTAMERICA LABORATORIES, INC. OF BURLINGTON VERMONT.
6. SAMPLES COLLECTED BY GEOSYNTEC CONSULTANTS, INC. DURING FEBRUARY 2007, MAY 2007, AND AUGUST 2007 WERE ANALYZED BY ALPHA WOODS HOLE LABORATORY OF WESTBOROUGH, MASSACHUSETTS.
7. SAMPLES COLLECTED AS PART OF THE FOLLOWING PROGRAMS:
   - SOIL GAS INVESTIGATION ACTIVITIES BETWEEN JANUARY 2005 AND AUGUST 2007
   - PRE–SOIL VAPOR EXTRACTION (SVE) BASELINE SAMPLING DURING SEPTEMBER 2007.
   - SVE PILOT TEST PERFORMANCE MONITORING BETWEEN NOVEMBER 2007 AND SEPTEMBER 2008.
8. SAMPLE COLLECTION/ANALYSIS PERFORMED USING UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA) METHOD TO–15.
9. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER CUBIC METER ($\mu g/m^3$).
10. FIELD DUPLICATES ARE PRESENTED IN BRACKETS [].
11. J = INDICATED THAT THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED QUANTITY.
12. < = CONSTITUENT IS NOT DETECTED AT A CONCENTRATION ABOVE THE REPORTED DETECTION LIMIT.
13. NA = NOT ANALYZED
14. THE SVE PILOT TEST DATA AND SUBSEQUENT DATA HAS NOT BEEN VALIDATED.

0 250' 500'
GRAPHIC SCALE

FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE
UTICA, NEW YORK
SVE PILOT TEST SUMMARY REPORT

SOIL GAS ANALYTICAL RESULTS FOR DETECTED VOLATILE ORGANIC COMPOUNDS ($\mu g/m^3$)

ARCADIS

FIGURE
5

ARCADIS

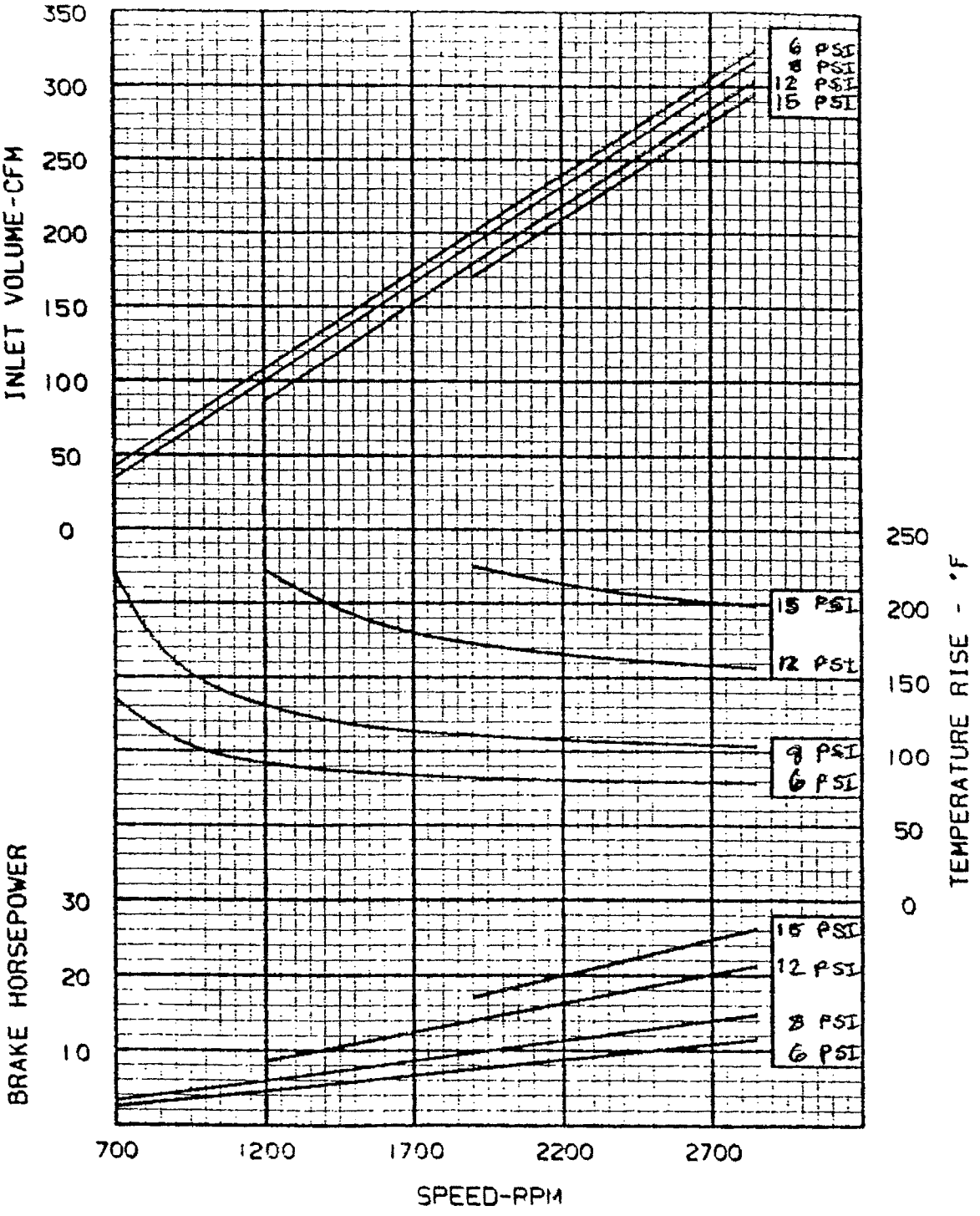
Appendix A

SVE Step Test and Extended Pilot Test Blower Performance Curves

SVE Step Test Blower
Performance Curve

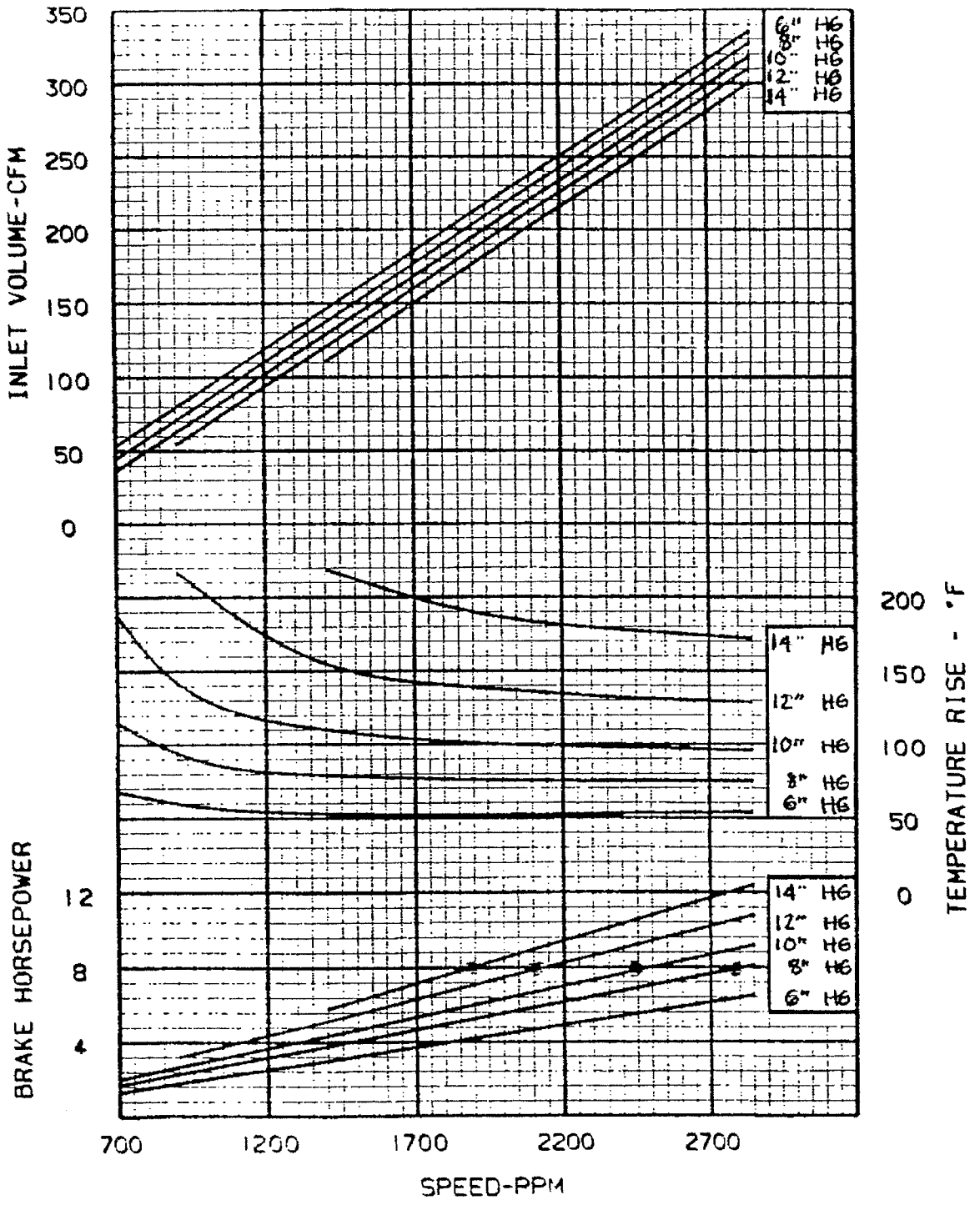
ROOTS DIVISION

PRESSURE PERFORMANCE
FRAME 53 UNIVERSAL RAI BLOWER
MAXIMUM PRESSURE RISE=15 PSI
MAXIMUM SPEED=2850 RPM



PC-12-53

VACUUM PERFORMANCE
FRAME 53 UNIVERSAL RAI BLOWER
MAXIMUM VACUUM=15 IN. HG
MAXIMUM SPEED=2850 RPM



VC-12-53

SVE Extended Pilot Test Blower
Performance Curve

Gardner Denver

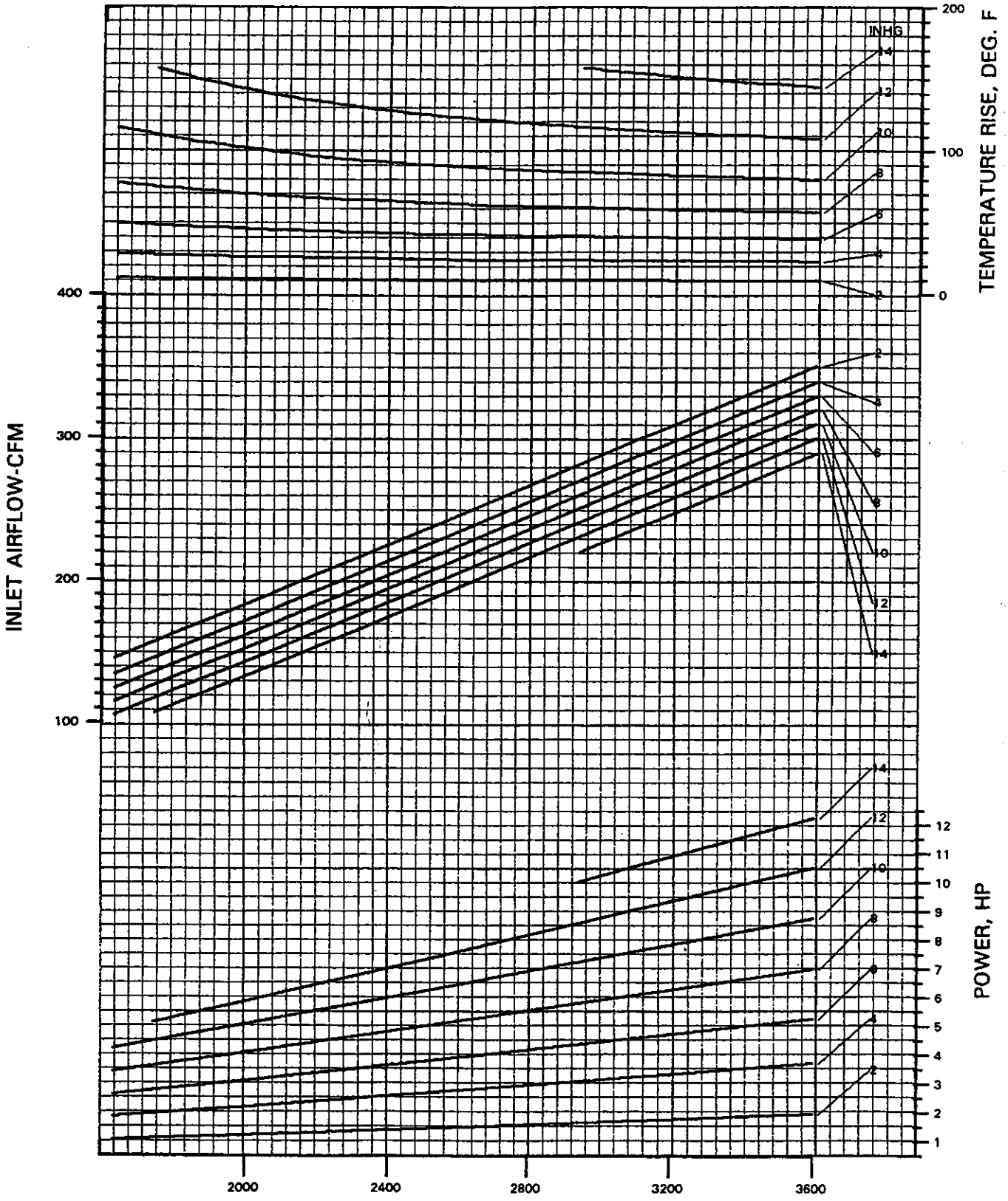
SUTORBILT LEGEND™
MODEL 3L
P-VERSION

DATA SHEET: SB-2-344P
DATED: 4-3-95

VACUUM PERFORMANCE CURVE

INLET AIR AT 68 DEG F, SPECIFIC GRAVITY = 1.0, DISCHARGE AT 29.92 IN HG ABS

DISPLACEMENT 0.104 FT^3/REV



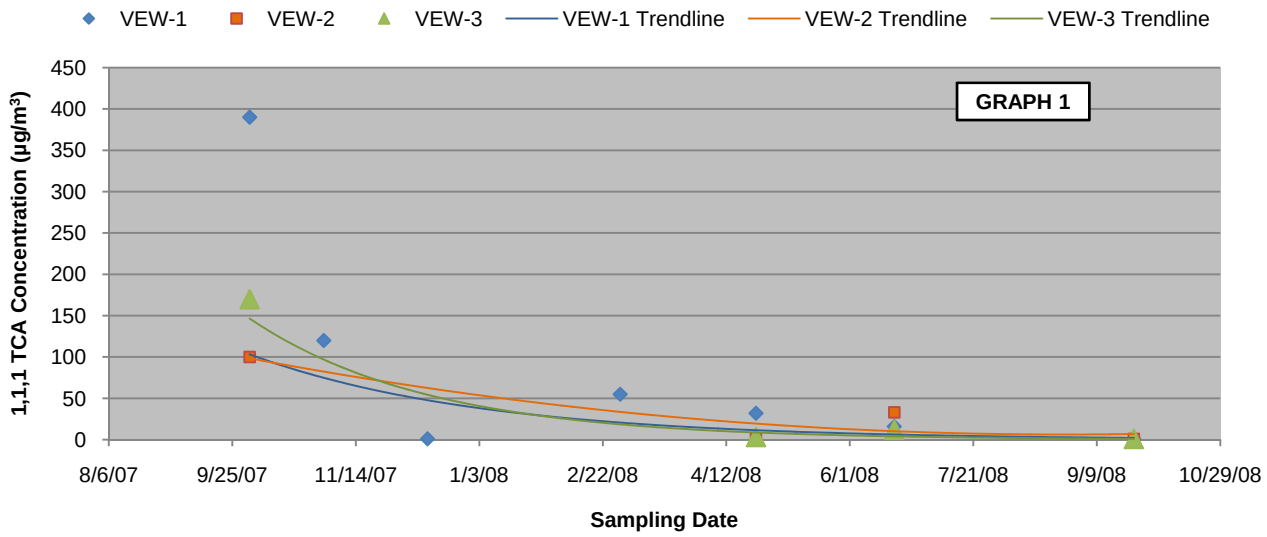
ARCADIS

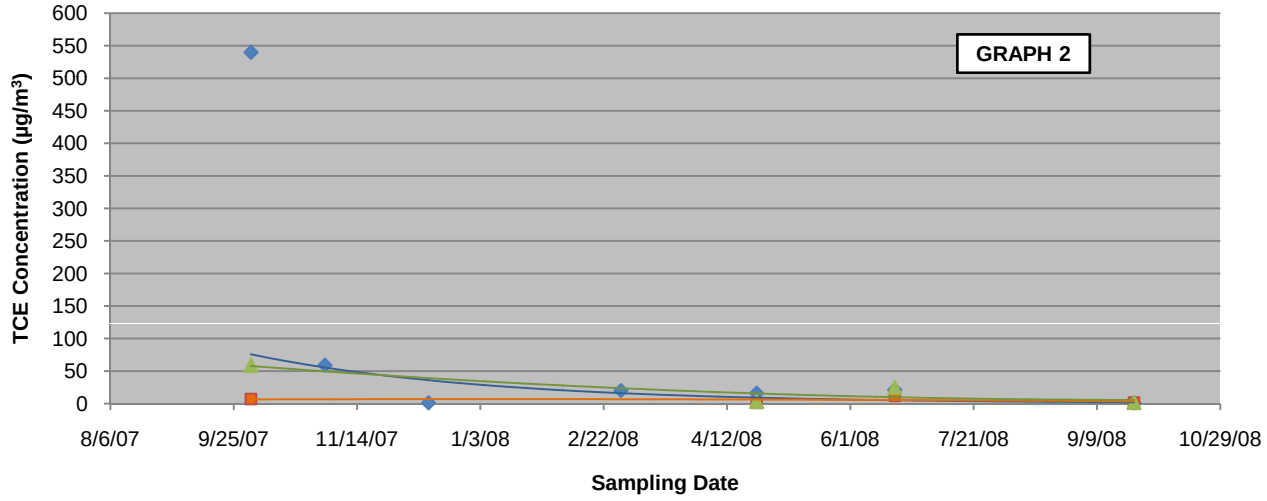
Appendix B

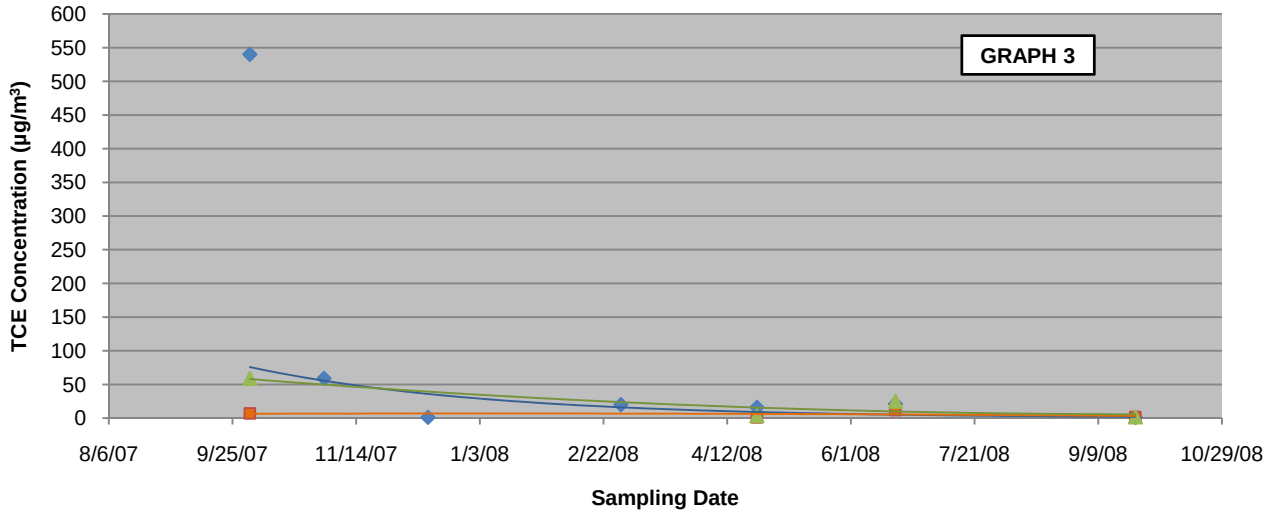
Soil Gas Concentration Graphs

GRAPHS 1 THROUGH 3
SOIL GAS CONCENTRATION TRENDS FOR 1,1,1-TCA, TCE, AND PCE IN ONSITE VAPOR EXTRACTION WELLS

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE, UTICA, NEW YORK

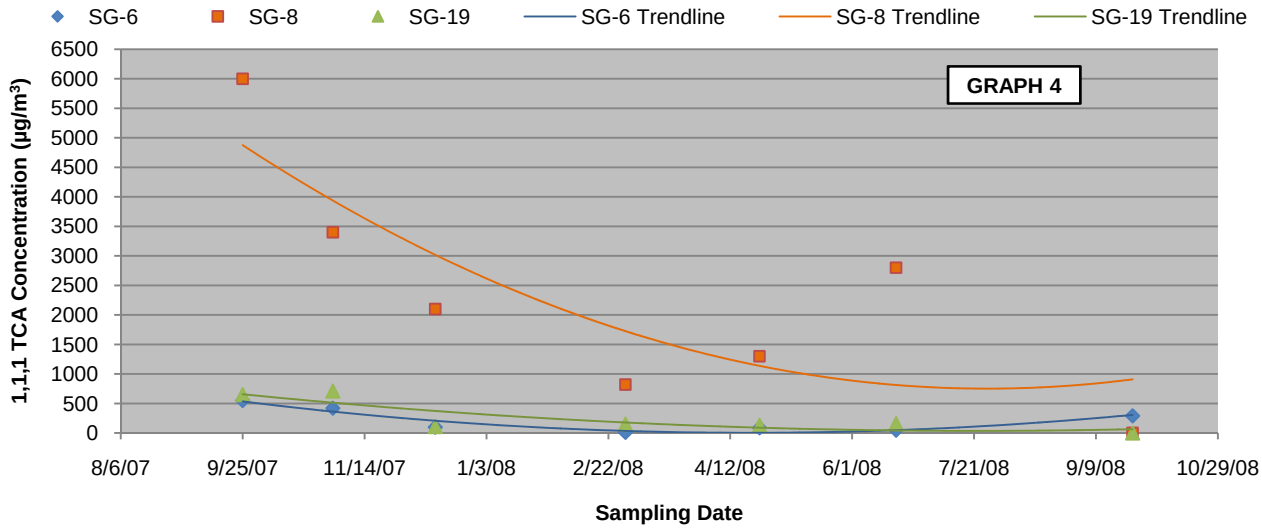


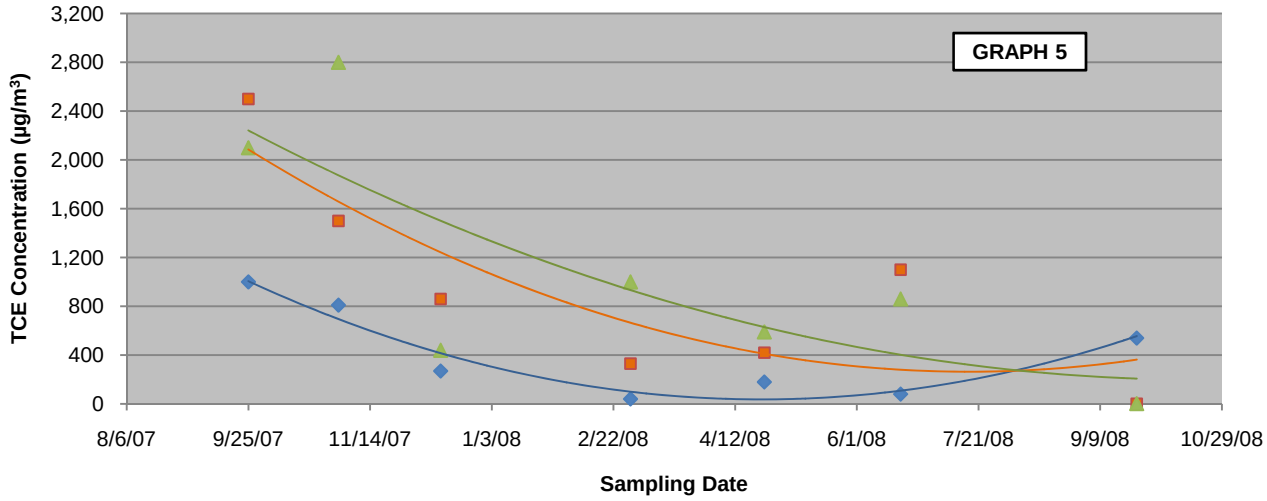


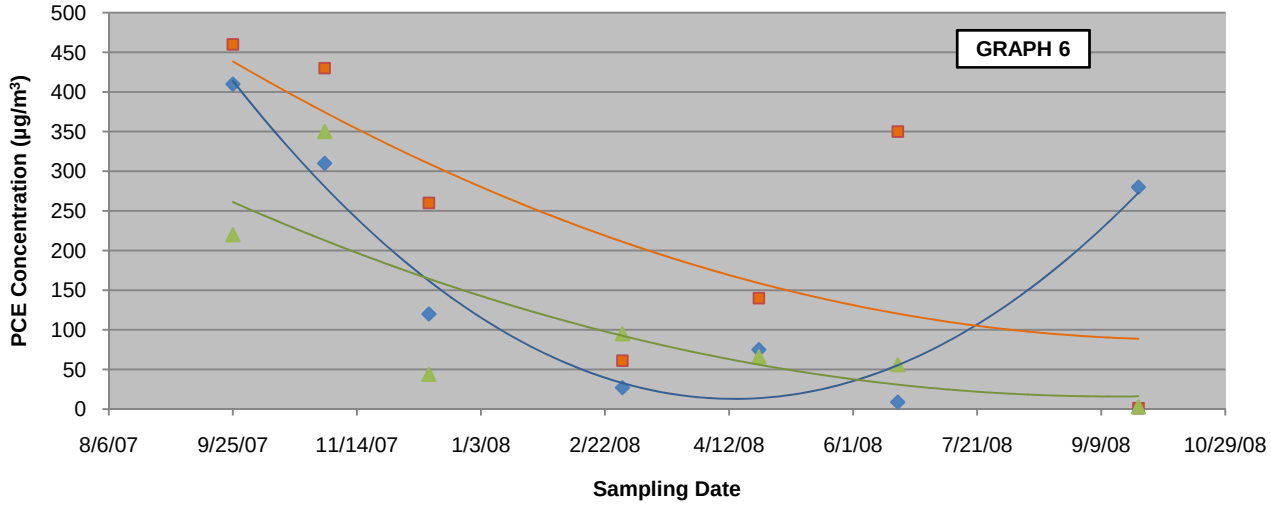


GRAPHS 4 THROUGH 6
SOIL GAS CONCENTRATION TRENDS FOR 1,1,1-TCA, TCE, AND PCE IN SOIL GAS PROBES WEST OF THE SITE

SOIL VAPOR EXTRACTION PILOT TEST
FORMER TRW AERONAUTICAL SYSTEMS FACILITY
211 SEWARD AVENUE, UTICA, NEW YORK







GRAPHS 7 THROUGH 9
SOIL GAS CONCENTRATION TRENDS FOR 1,1,1-TCA, TCE, AND PCE IN SOIL GAS PROBES SOUTHWEST OF THE SITE

SOIL VAPOR EXTRACTION PILOT TEST
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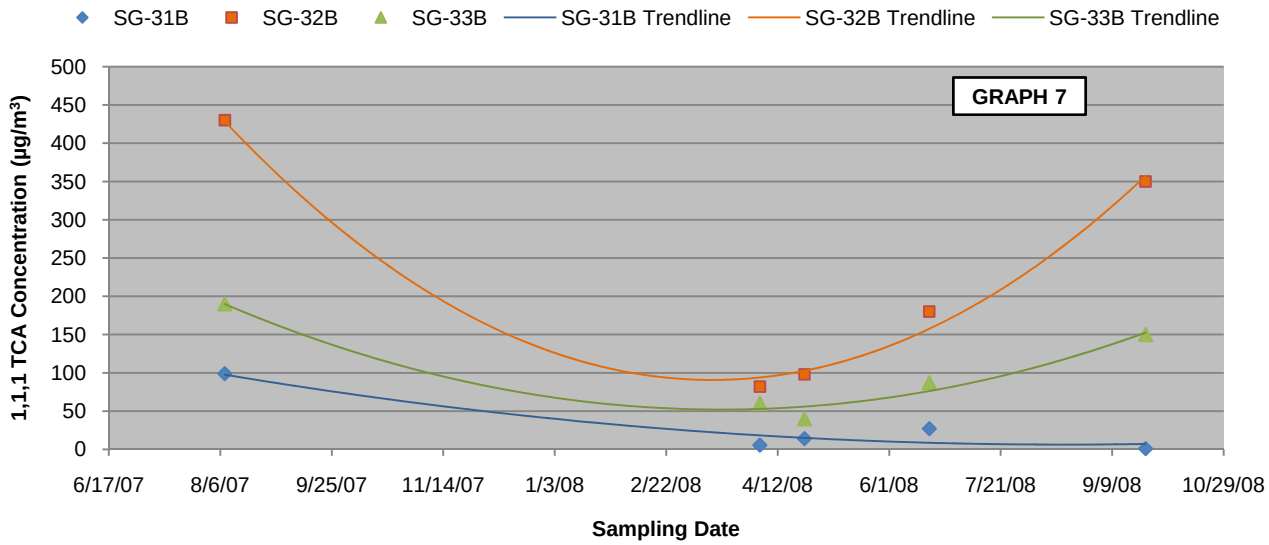

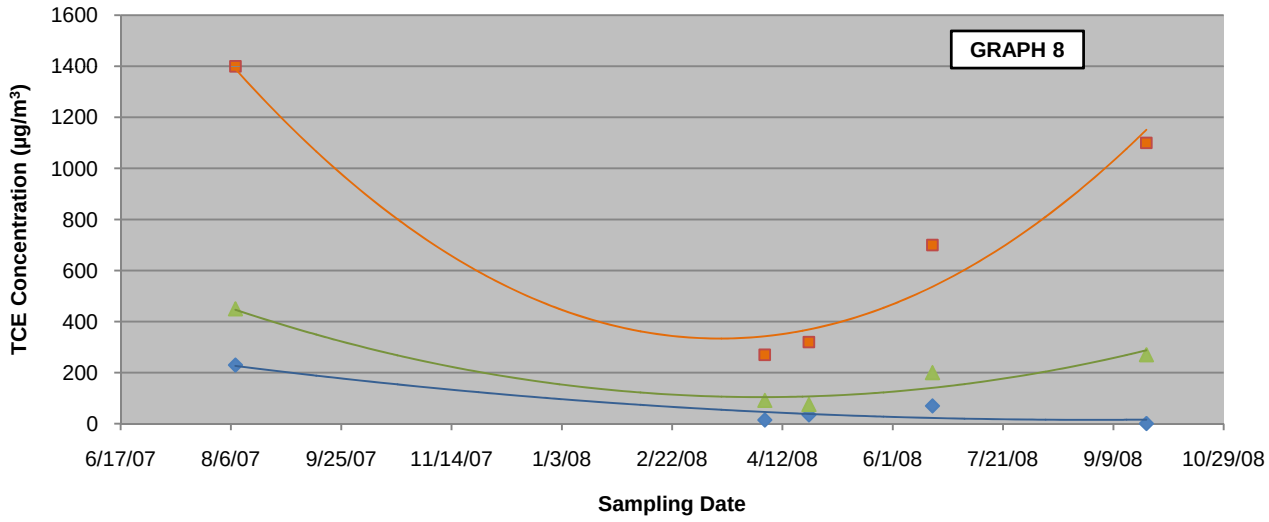

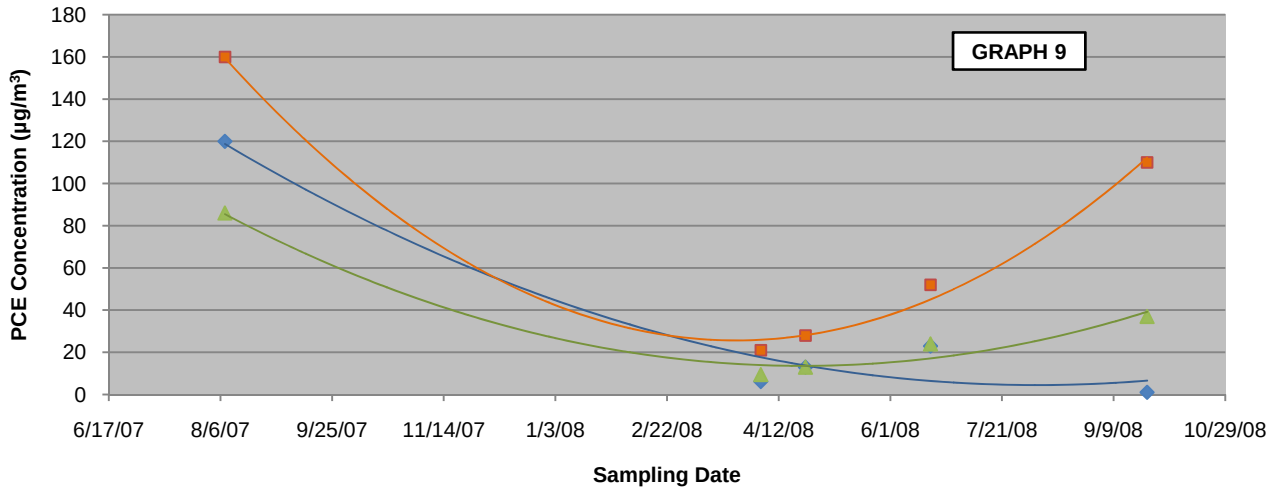

GRAPHS 10 THROUGH 12
SOIL GAS CONCENTRATION TRENDS FOR 1,1,1-TCA, TCE, AND PCE IN SOIL GAS PROBES SOUTH OF THE SITE

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